Self Diagnosis Supported model

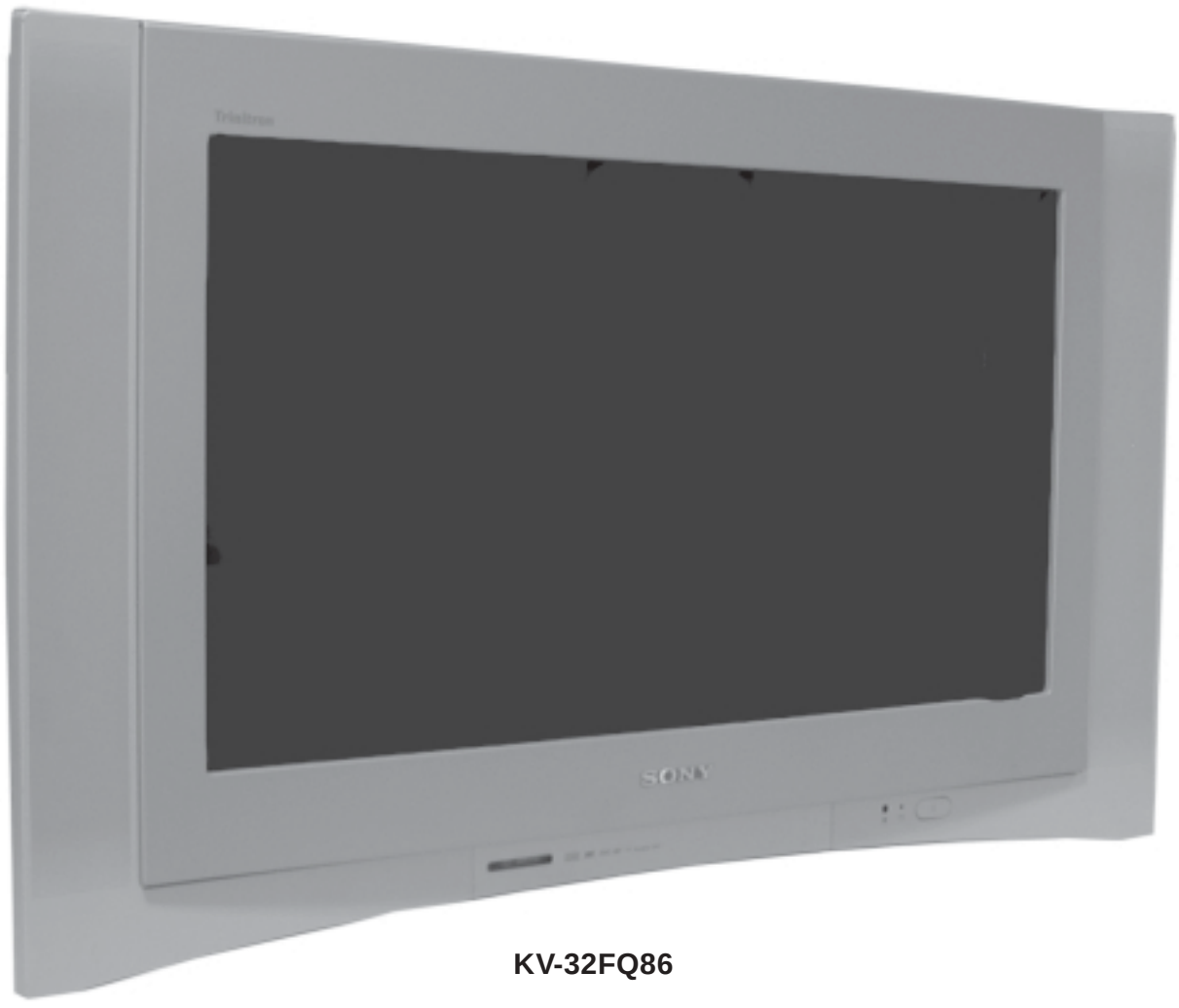
SERVICE MANUAL

AE-6BA CHASSIS

MODEL	COMMANDER	DEST	CHASSIS NO.
KV-28FQ86B	RM-945	FR	SCC-Q83T-A
KV-28FQ86E	RM-945	ESP	SCC-Q81W-A

MODEL	COMMANDER	DEST	CHASSIS NO.
KV-32FQ86B	RM-945	FR	SCC-Q83U-A
KV-32FQ86E	RM-945	ESP	SCC-Q81X-A
KV-32FQ86K	RM-945	OIRT	SCC-Q82M-A
KV-32FQ86U	RM-945	UK	SCC-Q84T-A

FD Trinitron



KV-32FQ86

RM-945

TRINITRON ® COLOR TV

SONY®

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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR THE CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE WORK TO AVOID POSSIBLE SHOCK HAZARD DUE TO LIVE CHASSIS, THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARKED ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE'LANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÈ LORS DE TOUT DÈPANNAGE LE CHÁSSIS DE CE RÈCEPTEUR EST DIRECTMENT RACCORDÈ Á L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS Á LA SECURITÈ!!

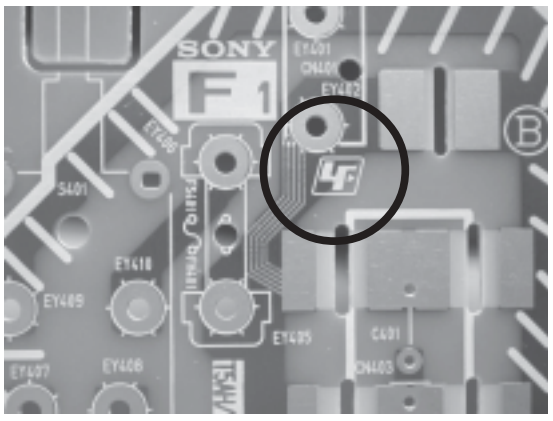
LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÈMAS DE PRINCIPE, LES VUES EXPLOSÈES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÈCURITÈ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPSANTS SONY DONT LE NUMÈRO DE PIÈCE EST INDIQUÈ DANS LE PRÈSENT MANUEL OU DANS DES SUPPLÈMENTS PUBLIÈS PAR SONY.

CAUTION

Lead Free Soldered Boards

The circuit boards listed below [Table 1] used in these models may have been processed using Lead Free Solder. The boards are identified by the LF logo located close to the board designation e.g. F1, H1 etc [see examples]. The servicing of these boards requires special precautions to be taken as outlined below.

example 1



example 2

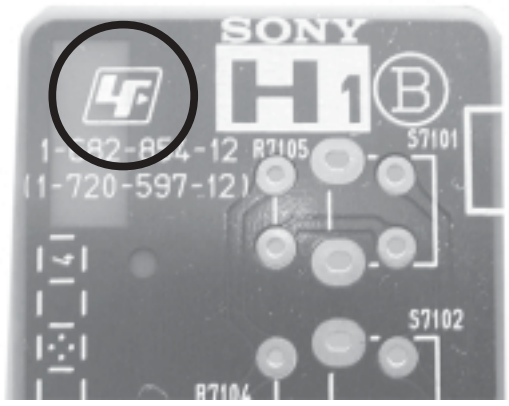


Table 1

Board	Function
A	Audio,Deflection,Tuner,Regulators, J,B Interface
B	Backend,Scanrate,LVDS,A_Interface
C	R,G,B Out
D	Deflection
D2	Smart Mode Deflection
F1	Power Switch/Fuse/SIRCS/Standby LED
G	Power Supply
H1	Front AV Input/Headphone and Control Switches
J	AV Scart I/O Switching and Sockets
VM	Velocity Modulation

It is strongly recommended to use Lead Free Solder material in order to guarantee optimal quality of new solder joints. Lead Free Solder is available under the following part numbers :

Partnumber	Diameter	Remarks
7-640-005-19	0.3mm	0.25Kg
7-640-005-20	0.4mm	0.50Kg
7-640-005-21	0.5mm	0.50Kg
7-640-005-22	0.6mm	0.25Kg
7-640-005-23	0.8mm	1.00Kg
7-640-005-24	1.0mm	1.00Kg
7-640-005-25	1.2mm	1.00Kg
7-640-005-26	1.6mm	1.00Kg

Due to the higher melting point of Lead Free Solder the soldering iron tip temperature needs to be set to 370 degrees centigrade. This requires soldering equipment capable of accurate temperature control coupled with a good heat recovery characteristics.

For more information on the use of Lead Free Solder, please refer to *http://www.sony-training.com*

ITEM MODEL	Television System	Stereo System	Channel Coverage	Color System
B	B/G/H, D/K, I, L	GERMAN/NICAM Stereo	VHF : E2-E12, R1-R12, S01-S03, F02-F10 , B-Q UHF : E21-E69, F21-F69, B21-B69, R21-R69 CABLE TV : S01-S20 HYPER : S21-S41	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
E	B/G/H, D/K	GERMAN/NICAM Stereo	VHF : E2-E12, R1-R12, S01-S03, UHF : E21-E69, R21-R69 CABLE TV : S01-S20 HYPER : S21-S41	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
K	B/G/H, D/K	GERMAN/NICAM Stereo	VHF : E2-E12, R1-R12 , S01-S03 UHF : E21-E69, R21-R69 CABLE TV : S01-S20 HYPER : S21-S41	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
U	I	NICAM Stereo	I UHF : B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)

Picture Tube	Flat Display FD Trinitron WIDE: Approx 71 cm (28 inches) (KV-28FQ86) Approx 82 cm (32 inches) (KV-32FQ86)	**Sound output**	
		Right and Left speaker	2x20W (Music Power) 2x10W (RMS)
		Sub Woofer	1x30W (Music Power) 1x15W (RMS)
Input/Output Terminals [REAR]		**General Specifications**	
1: 21-pin Euro connector (CENELEC standard)	Inputs for Audio and Video signals. Inputs for RGB. Outputs of TV Video and Audio signals.	Power Requirements	220 - 240V
		Power Consumption	130W/0.5W
2: 21-pin Euro connector	Inputs for Audio and Video signals. Inputs for RGB. Outputs of TV Video and Audio signals. (Monitor Out)	Dimensions	Approx 789x533x510mm (KV-28FQ86) Approx 910x586x586mm (KV-32FQ86)
		Weight	Approx 45kg (KV-28FQ86) Approx 64kg (KV-32FQ86)
3: 21-pin Euro connector	Inputs for Audio and Video signals. Inputs for S Video. Outputs of TV Video and Audio signals. (selectable), Smartlink Interface	Supplied Accessories	RM-945 Remote Commander (1) IEC designated R6 battery (2)
Phono Jacks	Output Connectors variable for Audio Signals	Other Features	100 Hz picture, Digital Plus, NexTView, Teletext, Smartlink, BBE Digital, Dolby Virtual, PAP, ACI
Input/Output Terminals [FRONT]		**Remote Control System : Infrared Control**	
Headphone jack	stereo mini jack	Power requirements	3V dc 2 batteries IEC designation R6 (size AA)
Audio inputs	phono jacks		
Video inputs	phono jacks		
S Video input	4 pin DIN		

Design and specifications are subject to change without notice.

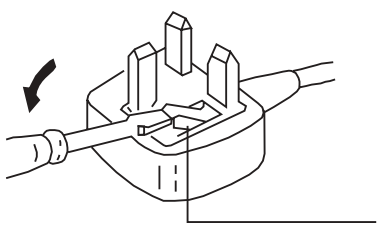
Item / Model Name	KV-28FQ86B	KV-28FQ86E	KV-32FQ86B	KV-32FQ86E	KV-32FQ86K	KV-32FQ86U
Pal Comb	OFF	OFF	OFF	OFF	OFF	OFF
PAP	ON	ON	ON	ON	ON	ON
RGB Priority	ON	ON	ON	ON	ON	ON
Woofer Box	ON	ON	ON	ON	ON	ON
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Scart 3	ON	ON	ON	ON	ON	ON
Front in (4)	ON	ON	ON	ON	ON	ON
Projector	OFF	OFF	OFF	OFF	OFF	OFF
Norm B/G	ON	ON	ON	ON	ON	OFF
Norm I	ON	OFF	ON	OFF	OFF	ON
Norm D/K	ON	ON	ON	ON	ON	OFF
Norm AUS	OFF	OFF	OFF	OFF	OFF	OFF
Norm L	ON	OFF	ON	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF	OFF	OFF
Norm M	OFF	OFF	OFF	OFF	OFF	OFF
Teletext	ON	ON	ON	ON	ON	ON
Nicam Stereo	ON	ON	ON	ON	ON	ON

WARNING (UK Models only)

The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** rating. Should the fuse need to be replaced, use a **5AMP FUSE** approved by ASTA to **BS 1362**, ie one that carries the ASTA mark.

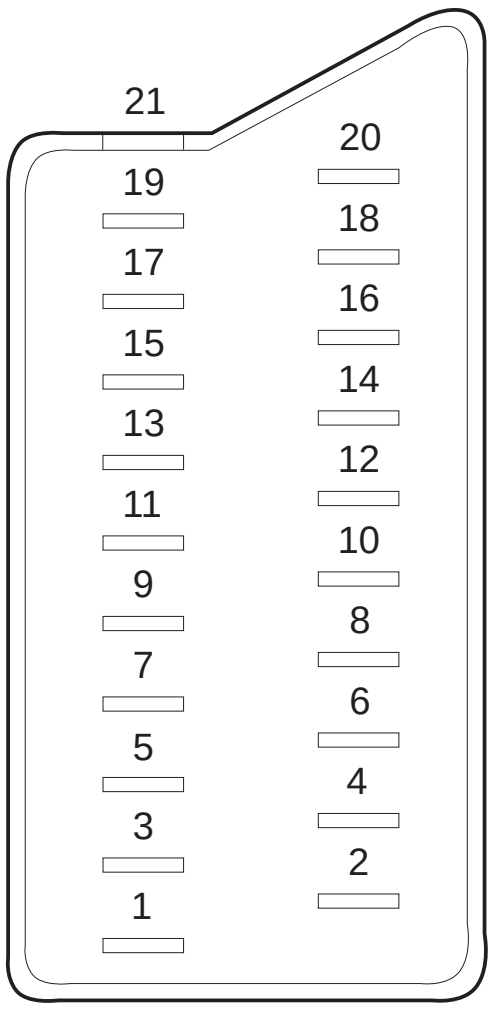
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR THE OUTLET SOCKETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET.

When an alternative type of plug is used, it should be fitted with a **5 AMP FUSE**, otherwise the circuit should be protected by a **5AMP FUSE** at the distribution board.



How to replace the fuse.
Open the fuse compartment with a screwdriver blade and replace the fuse.

21 pin connector



Pin No	1	2	3	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
2	○	○	○	Audio input B (right)	Standard level : 0.5V rms Output impedence : More than 10kohm*
3	○	○	○	Audio output A (left)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5V rms Output impedence : More than 10kohm*
7	○	●	●	Blue input	0.7 +/- 3dB, 75 ohms positive
8	○	○	○	Function select (AV control)	High state (9.5-12V) : Part mode Low state (0-2V) : TV mode Input impedence : More than 10K ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7 +/- 3dB, 75 ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	–	–	Red input	0.7 +/- 3dB, 75 ohms, positive
	–	○	○	(S signal Chroma input)	0.3 +/- 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1-3V) Low state (0-0.4V) Input impedence : 75 ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
20	○	–	–	Video input	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
	–	○	○	Video input Y (S signal)	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
21	○	○	○	Common ground (plug, shield)	

○ Connected ● Not Connected (open) * at 20Hz - 20kHz

Rear Connection Panel

Front Connection Panel

S-Video socket

S Video socket pin configuration		
Pin No	**Signal**	**Signal Level**
1	Ground	-
2	Ground	-
3	Y (S signal) input	1V+/- 3dB 75ohm, positive Sync. 0.3V -3 +10dB
4	C (S signal) input	0.3V+/- 3dB 75ohm, positive Sync.

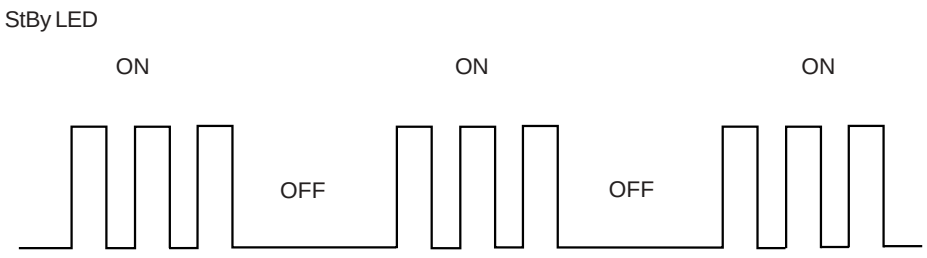
AE-6BA SELF DIAGNOSTIC SOFTWARE

The identification of errors within the AE-6BA chassis is triggered in one of two ways :- 1: Busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with a continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the LED (Series of flashes which must be counted) See table 1, non fatal errors are reported using this method. Each time the software detects an error it is stored within the NVM. See Table 2.

Table 1

Error Message	LED Code
No error	00
Reserved	01
OCP (Over Current Protection)	02
Over Voltage Protection	03
No Vertical Sync	04
IKR Error at power on	05
IIC bus clock and/or data lines low at power on	06
NVM no IIC bus acknowledge at power on	07
Horizontal Protection	08
Tuner no acknowledge at power on	09
Sound Processor Error	10
Reserved	11
Scanrate Error	12
DAC Error	13
Backend Error	14
Dynamic Convergence Error	15
PIP Error	16

Flash Timing Example : e.g. error number 3



How to enter into Table 2

1. Turn on the main power switch of the TV set.
2. Program Remote Commander for Operation in Service Mode. [See Page 22].
3. Press ‘AUX/VIDEO’ ‘AUX/VIDEO’ > ‘MENU’ on the Remote Commander.
4. Using the Remote Commander, Scroll to the ‘Error’ item using the down arrow key, then press the right arrow key.
5. The following table will be displayed indicating the error count.

Table 2

Error monitor		
WORKING TIME:	**(Hours:Minutes)**	82:33
Error counters:		
E02: OCP		0
E03: OVP		0
E04: NO V SYNC		0
E05: IKR		0
E06: IIC		0
E07: NVM		0
E08: H PROT		0
E09: TUNER		0
E10: SOUND		0
E11: 9 VOLTS		0
E12: SCANRATE		0
E13: 3DCOMB		0
E14: BACKEND		0
E15: DYNCON		0
E16: HIGH VOLTAGE		0
E17: AVSWITCH		0
E18: CHROMA DEC		0
E19: FRCA		0
E20: PJ ENG		0
E21: DAC		0
E24: SPEAKER PROT		0
E25: MEMORY STICK		0
Select: ▲ ▼	Previous Menu: ◀	

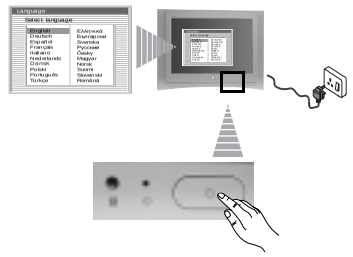
Note: To clear the error count data press ‘80’ on the Remote commander.

The operating instructions mentioned here are partial abstracts from the ‘Operating Instruction Manual’. The page numbers of the ‘Operating Instruction Manual’ remain as in the manual.

Switching On the TV and Automatically Tuning

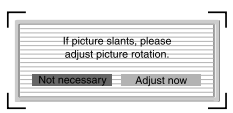
The first time you switch on your TV, a sequence of menu screens appear on the TV enabling you to: 1) choose the language of the menu screen 2) adjust the picture slant, 3) check how to connect optional equipment to your TV, 4) search and store all available channels (TV Broadcast) and 5) change the order in which the channels (TV Broadcast) appear on the screen.
However, if you need to change any of these settings at a later date, you can do so by selecting the appropriate option in the (Set Up menu) or by pressing the Auto Start Up Button ⏭ on the TV set.

1 Connect the TV plug to the mains socket (220-240V AC, 50Hz)
The first time that the TV set is connected, it is usually turned on. If the TV is off, press the ⏻ on/off button on the TV set to turn on the TV.
The first time you switch on the TV, a **Language** menu displays automatically on the TV screen.



2 Press the ↑, ↓, ← or → buttons on the remote control to select your language, then press the **OK** button to confirm your selection. From now on all the menus will appear in your chosen language.

3 Because of the earth’s magnetism, the picture might slant. The **Picture Rotation** menu allows you to correct the picture slant if it is necessary.

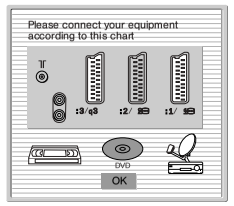


a) If it is not necessary, press **OK** to select **Not necessary**.

b) If it is necessary, press ← or → to select **Adjust now**, then press **OK** and correct any slant of the picture between –5 and +5 by pressing ↓ or ↑. Finally press **OK** to store.

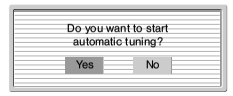
continued...

4 A diagram will appear showing you how to connect a wide range of equipment to your TV set. Follow the instructions and finally press the **OK** button to remove the diagram and continue the automatic process.

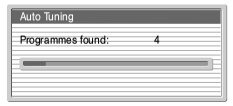


After the automatic tuning process has finished and any optional equipment has been connected, we recommend you follow the instructions explained on the section "Connection Guide" on page 15 to get the optimum settings related to the optional equipment.

5 The **Auto Tuning** menu appears on the screen. Press the **OK** button to select **Yes**.



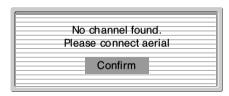
6 The TV starts to automatically search and store all available broadcast channels for you.



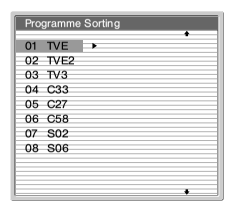
This procedure could take some minutes. Please be patient and do not press any buttons, otherwise automatic tuning will not be completed.

In some countries the TV Broadcaster installs the channels automatically (ACI system). In this case, the TV Broadcaster sends a menu in which you can select your city by pressing the ↓ or ↑ button and **OK** to store the channels.

If no channels were found during the auto tune process, a message appears automatically on the screen asking you to connect the aerial. Check the aerial connection (refer to page 7). Press the **OK** button to restart the auto tuning process.



7 After all available channels are captured and stored, the **Programme Sorting** menu automatically appears on the screen enabling you to change the order in which the channels are stored.



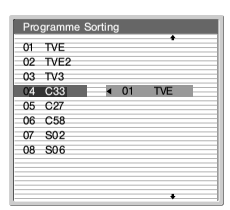
a) If you wish to keep the broadcast channels in the tuned order, go to step 8.

b) If you wish to store the channels in a different order:

1 Press the ↓ or ↑ button to select the programme number with the channel (TV Broadcast) you wish to move. Press the → button.

2 Press the ↓ or ↑ button to select the new programme number position for your selected channel (TV Broadcast). Press the **OK** button to store.

3 Repeat steps b)1 and b)2 if you wish to change the order of the other channels.



8 Press the **MENU** button to remove the menu from the screen

Your TV is now ready for use

Introducing and Using the Menu System

Your TV uses an On-Screen menu system to guide you through the operations. Use the following buttons on the Remote Control to operate the menu system:

1 To switch on the menu screens:

Press the **MENU** button to switch the first level menu on.

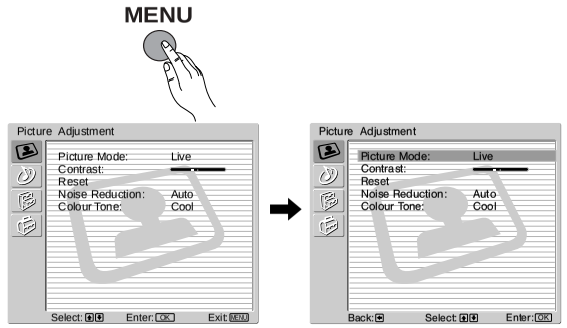
2 To navigate through the menus:

- To highlight and select the desired menu or option, press ↓ or ↑.
- To enter the selected menu or option, press **OK** or →.
- To return to the last menu or option, press **OK** or ←.
- To alter the settings of your selected option, press ↓/↑/← or →.
- To confirm and store your selection, press **OK**.

3 To switch off the menu screens:

Press the **MENU** button to remove the menu from the screen.

The Picture Adjustment Menu



The “Picture Adjustment” menu allows you to alter the picture settings.

To do this:
Press the **MENU** button and then press **OK** to enter this menu. Next press ↓ or ↑ to select the desired option and press **OK**. Finally read the instructions below on how to operate each option.

Picture Mode This option allows you to customise the Picture Mode based on the programme you are watching. After selecting this option press **OK**. Next press ↓ or ↑ repeatedly to select:

Personal (for individual settings).
Live (for live broadcast programmes, DVD and Digital Set Top Box receivers)
Movie (for films).

Once you have selected your desired option, press **OK** to store.

"Brightness", "Colour" and "Sharpness" level of "Live" and "Movie" mode are fixed in the factory to get the best picture quality.

Contrast Press ← or → to reduce or enhance picture contrast. Next press **OK** to store.

Brightness Press ← or → to darken or brighten the picture. Next press **OK** to store.

This option only appears for alteration if "Picture Mode" is set to "Personal".

Colour Press ← or → to decrease or to increase color intensity. Next press **OK** to store.

This option only appears for alteration if "Picture Mode" is set to "Personal".

Hue Press ← or → to decrease or to increase the green tones. Next press **OK** to store.

This option only appears for NTSC signal (e.g. USA video tapes).

Sharpness Press ← or → to soften or to sharpen the picture. Next press **OK** to store.

This option only appears for alteration if "Picture Mode" is set to "Personal".

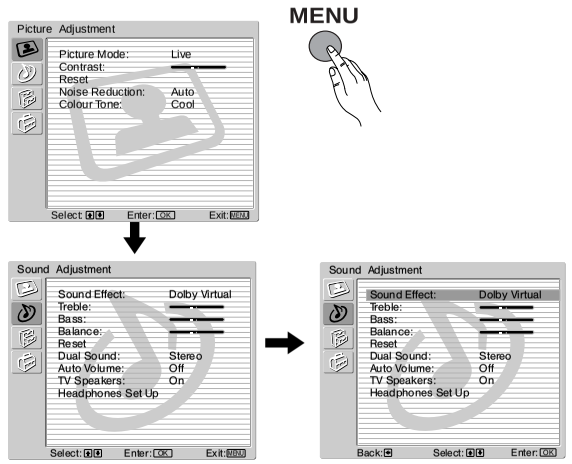
Reset Press **OK** to reset the picture to the factory preset levels.

Noise Reduction This option is set to **Auto** to automatically reduce the snowy picture that may be visible in the broadcast signal. However, it can be modified by pressing ↓ or ↑ to select **Off, Low, Mid** or **High**. Finally press **OK** to store.

Colour Tone This option allows you to alter the tint of the picture. After selecting this option press →. Next press ↓ or ↑ repeatedly to select: **Warm** (gives the white colours a red tint), **Normal** (gives the white colours a neutral tint), **Cold** (gives the white colours a blue tint). Next press **OK** to store.

GB

The Sound Adjustment Menu



The "Sound Adjustment" menu allows you to alter the sound settings.

To do this:
Press the **MENU** button and press ↓ to select ♪, then press **OK** to enter this menu. Next press ↓ or ↑ to select the desired option and press **OK**. Finally read the instructions below on how to operate each option.

Sound Effect — This option allows you to customise the Sound Effect. After selecting this option press **OK**. Next press ↓ or ↑ repeatedly to select:

- **Off** (Flat response).
- **Natural** (Enhances clarity, detail and presence of sound by using "BBE High Definition Sound system"*).
- **Dynamic** ("BBE High Definition Sound system"* intensifies clarity and presence of sound for better intelligibility and musical realism).
- **Dolby** Virtual** (Dolby Virtual, simulates the sound effect of "Dolby Surround Pro Logic").

Once you have selected your desired option, press **OK** to store.

Treble — Press ← or → to decrease higher-frequency sounds. Next press **OK** to store.

Bass — Press ← or → to decrease or to increase the lower-frequency sounds. Next press **OK** to store.

Balance — Press ← or → to emphasise the left or the right speaker. Next press **OK** to store.

Reset — Press **OK** to reset the sound to the factory preset levels. Next press **OK** to store.

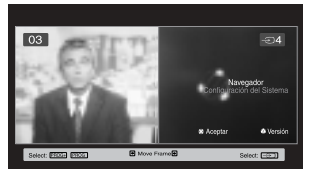
Dual Sound
- For a Stereo broadcast:
  Press ↓ or ↑ to select **Stereo** or **Mono**. Next press **OK** to store.
- For a bilingual broadcast:
  Press ↓ or ↑ to select **Mono** (for mono channel if available), **A** (for channel 1) or **B** (for channel 2). Next press **OK** to store.

PAP (PICTURE AND PICTURE)

PAP divides the screen into two to watch two pictures in format 4:3 simultaneously.

Switching PAP on and off

1 Press ◑ to display PAP.



One of the screens will be framed to indicate that this is the active screen. It means that when you want to select the PAP source, you will be doing it in the active screen.

2 Press ◑ again to remove PAP.

On the screen a banner appears guiding you on how to operate PAP. This banner will disappear after some seconds but it can always be displayed again by pressing the ⊞ button.

Changing the active screen

This is only possible if the Media Selector is set to TV.

To change the active screen (framed), press the ← or → buttons.

Selecting PAP source

1 **Selecting a TV channel:**
Press the ← button to select the left screen as the active screen. Next press the number buttons or **PROG +/-** to select a TV channel.

Video input signals can not be displayed on the left screen.

2 **Selecting an input source:**
Press the → button to select the right screen as the active screen. Next press repeatedly the ⊖ button to show the input signal of the connected equipment on right screen of the TV. For more details on which input symbol you wish to choose, please see section "Viewing pictures from equipment connected to the TV" on page 23.

RF signal (TV broadcast channels) can not be displayed on the right screen.

Selecting the sound

The sound of the active screen (framed) always comes from the TV speakers.
Besides that, you can listen to the active screen as well as the non active screen via headphones.

To do this:
With the PAP switched on, refer to the section "The Sound Adjustment Menu", select "Headphones Set Up" and set the option "♫ PAP Sound" according your preference. For details see page 13.

In PAP (picture and picture) mode, the output from the Scart ⊖2/⊖2 is fixed to the right picture.

GB

Teletext

Teletext is an information service transmitted by most TV stations. The index page of the teletext service (usually page 100) gives you information on how to use the service. To operate teletext, use the remote control buttons as indicated below.

Teletext errors may occur if you use a channel (TV Broadcast) with a weak signal.

To switch on Teletext :

1 Select the broadcast channel which carries the teletext service you wish to view.
2 Press the ☰ button once to enter Picture and Text (P&T) mode. The screen is divided into two with the Text display on the left and the TV channel in the bottom right corner.
3 If you wish to view the Text in full screen mode, press the ☰ button a second time.

To select a Teletext page:
Input the 3 digit page number, using the numbered buttons.
- *If you make a mistake, retype the correct page number.*
- *If the counter on the screen continues searching, it is because the page is not available. If this is the case, input another page number.*

To access the next or preceding page:
Press **PROG +** (⊟▲) or **PROG -** (⊟▼).

To freeze a teletext page:
Press ⊖/⊕ button. Press again to cancel the freeze.

To reveal concealed information (e.g: answer to a quiz):
Press ⊞/? button. Press again to conceal the information.

To select a sub page:
A teletext page may consist of several sub pages. In this case, one or more arrows appear next to the page number and an information box is displayed at the bottom of the screen showing the number of sub pages contained on this page. As soon as sub pages are available, they start to automatically appear. If you want to stop the show and select your desired sub page, press ◄ or ► repeatedly.

To Switch Off Teletext:
Press ▢ button.

Fastext

Fastext service lets you access Teletext pages with one button push.
When you are in Teletext mode and Fastext is broadcast, a colour coded menu appears at the bottom of the teletext page. Press the appropriate coloured button (red, green, yellow or blue) to access the page corresponding to your menu choice.

Remote Control Configuration for VCR or DVD

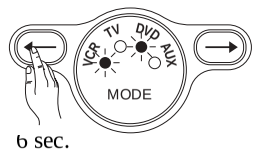
In it's default condition this remote control will operate the basic functions of this Sony TV, Sony DVDs and most Sony VCRs. To control VCRs and DVDs of other manufacturers (and some Sony VCR models), the remote control needs to be configured.

fig. 2

To do this:

- Before you start, look up the 3 digit code for your brand of DVD or VCR from the list below. On those brands that have more than one code, enter the first code number.
- Sony will endeavour to update the software according to market changes. Therefore, please refer to the code table included with the remote control for latest code set.
- A small label is added inside the battery door to allow you to record your brand codes.

fig. 1



1 Press and hold the ← button of the remote control for approximatel
seconds until the green DVD and VCR light of the Media Selector st
flashing (see fig. 1).

2 While the VCR and DVD lights are flashing, enter all three digits of
code for your brand of VCR or DVD (see the list below) using the **nun**
buttons on the remote control (see fig. 2).

6 sec.

If your selected code is entered correctly, the VCR or DVD gr
light (according to your selection) will be lit momentarily (see fi
otherwise repeat all the above steps.

fig. 3

3 Turn on your VCR or DVD and check that the main functions work.

- If your device is not working or some of the functions do not work please check that you entered the correct code set or try the next code listed against the brand.
- Not all brands are covered and not all models of every brand may be covered.

4 Always remember to press the ← or → button until the green light iluminates according to the equipment you want to operate with this remote control: **VCR, TV** or **DVD**.

VCR Brand List	
Brand	**Code**
SONY (VHS)	301, 302, 303, 308, 309,362
SONY (BETA)	303, 307, 310
SONY (DV)	304, 305, 306
AIWA	325, 331, 351
AKAI	326, 329, 330
DAEWOO	342, 343
GRUNDIG	358, 355, 360, 361, 320, 351, 366
HITACHI	327, 333, 334
JVC	314, 315, 322, 344, 352, 353, 354, 348, 349
LG	332, 338
LOEWE	358, 355, 360, 361, 320, 351
MATSUI	356, 357
ORION	328
PANASONIC	321, 323
PHILIPS	311, 312, 313, 316, 317, 318, 358, 359, 363, 364
SAMSUNG	339, 340, 341, 345
SANYO	335, 336
SHARP	324
THOMSON	319, 350, 365
TOSHIBA	337

DVD Brand List	
Brand	**Code**
SONY	001, 029, 030, 036, 037, 038, 039, 040, 041, 042, 043, 044, 053, 054, 055
AIWA	021
AKAI	032
DENON	018, 027, 020, 002
GRUNDIG	009, 028, 023, 024, 016, 003
HITACHI	025, 026, 015, 004, 035
JVC	006, 017
KENWOOD	008
LG	015, 014, 034
LOEWE	009, 028, 023, 024, 016, 003
MATSUI	013, 016
ONKYO	022, 033
PANASONIC	018, 027, 020, 002, 045, 046, 047
PHILIPS	009, 028, 023, 024, 016, 003, 031
PIONEER	004, 050, 051, 052
SAMSUNG	011, 014
SANYO	007
SHARP	019, 027
THOMSON	012
TOSHIBA	003, 048, 049
YAMAHA	018, 027, 020, 002

Technical Specifications

TV system:
I
Colour system:
PAL
SECAM, NTSC 3.58, 4.43 (only Video In)

Channel Coverage:
UHF: B21-B69

Picture Tube:
Flat Display FD Trinitron WIDE:
KV-28FQ86U: 28" (approx. 71cm. measured diagonally)
KV-32FQ86U: 32" (approx. 82cm. measured diagonally)

Rear Terminals
- **AV1**
  1/ 1
  21-pin scart connector (CENELEC standard) including audio/video input, RGB input, TV audio/video output.
- **AV2**
  2/ 2
  21-pin Scart connector (CENELEC standard) including audio/video input, RGB input, monitor audio/video output.
- **AV3**
  3/ 3
  21-pin Scart connector (CENELEC standard) including audio/video input, S video input, selectable audio/video output and SmartLink interface.
- audio outputs (Left/Right) - phono jacks

Front Terminals
- 4 S Video input – 4 pin DIN.
- 4 video input – phono jack.
- 4 audio input – phono jacks.
- headphones jack.

Sound Output:
2 x 20 W (music power)
2 x 10 W (RMS)
Woofer:
30 W (music power)
15 W (RMS)

Power Consumption:
KV-28FQ86U: 130 W
KV-32FQ86U: 130 W

Standby Power Consumption:
0.5 W

Dimensions (w x h x d) :
KV-28FQ86U:
approx. 789 x 533 x 510 mm.
KV-32FQ86U:
approx. 910 x 586 x 586 mm.

Weight:
KV-28FQ86U: approx. 45 Kg.
KV-32FQ86U: approx. 64 Kg.

Accessories supplied:
- 1 Remote Control (RM-945)
- 2 Batteries (IEC designated, AA size)

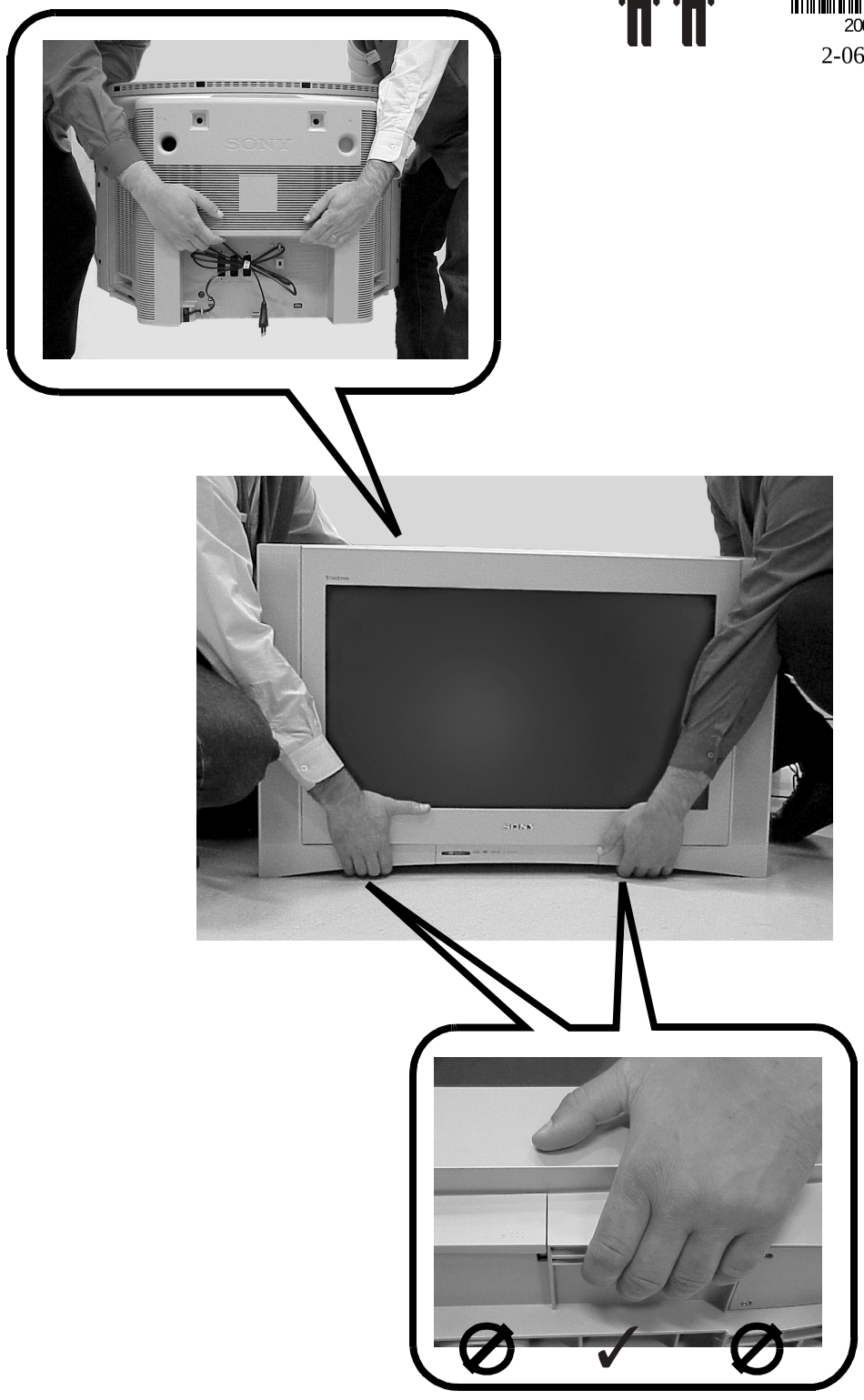
Other features:
- 100 Hz picture, Digital Plus.
- Teletext, Fastext, TOPtext.
- NexTView.
- SmartLink.
- TV system autodetection.
- Dolby Virtual.
- BBE Digital.
- NICAM.
- PAP.
- ACI (Auto Channel Installation).

Optional accessories:
- Stand especially designed for this TV
  KV-28FQ86U: SU-28FQ3.
  KV-32FQ86U: SU-32FQ3.

Design and specifications are subject to change without notice.

GB

Lifting the TV Set



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Troubleshooting

Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark) and no sound.	• Check the aerial connection. • Plug the TV in and press the ⏻ button on the front of the TV. • If the standby indicator ⏻ is on, press TV I/⏻ button on the remote control.
Poor or no picture (screen is dark), but good sound.	• Using the menu system, select the “Picture Adjustment” menu and select “Reset” to return to the factory settings (see page 11).
No picture or no menu information from equipment connected to the Scart connector.	• Check that the optional equipment is on and press the ⮌ button repeatedly on the remote control until the correct input symbol is displayed on the screen (see page 23).
Good picture, no sound.	Press the 🔊 + button on the remote control. Check that “TV Speakers” is “On” in the “Sound Adjustment” menu(see page 13). Check that headphones are not connected.
No colour on colour programmes.	• Using the menu system, select the “Picture Adjustment” menu and select “Reset” to return to factory settings (see page 11).
When you switch on the TV the last channel you were watching before switching the TV off does not appear.	• This is not a malfunction. Press the number buttons on the remote control to select the desired channel.
Distorted picture when changing programmes or selecting teletext.	• Turn off any equipment connected to the Scart connector on the rear of the TV.
Wrong characters appear when viewing NexTView.	• Use the menu system to enter the “Language” menu (see page 16) and select the same language that NexTView is broadcast in.
Picture slanted.	• Using the menu system, select the “Picture Rotation” option in the “Features” menu to correct the picture slant (see page 15).
Snowy picture when viewing a TV channel.	• Using the menu system, select the “Manual Programme Preset” menu and adjust Fine Tuning (AFT) to obtain better picture reception (see page 18). • Using the menu system, select the “Noise Reduction” option in the “Picture Adjustment” menu and select “Auto” to reduce the noise in the picture (see page 11).

continued...

Problem	Solution
No unscrambled picture whilst viewing an unscrambled channel with a decoder or a Set Top Box connected through the Scart connector ⮌3/⮎3.	• Using the menu system, select the “Features” menu and set “AV3 Output” to “TV” (see page 15). • Check that the Decoder or the Set Top Box is not connected on the scart ⮌2/⮎2.
↓, ↑, ← and → buttons do not work in PAP mode.	• PAP navigation is only possible in TV mode, please check that Media Selector is set to TV.
Remote control does not function.	• Check that the Media Selector on the remote control is set to the device you are using (VCR, TV or DVD). • If the remote control does not operate the VCR or DVD even when the Media Selector has been set correctly, enter the necessary code set as explained on page 24. • Replace the batteries.
The standby indicator ⏻ on the TV flashes.	• Contact your nearest Sony service centre.

⚠ **• If you continue to experience problems, have your TV serviced by qualified personnel.**
• Never open the casing yourself.

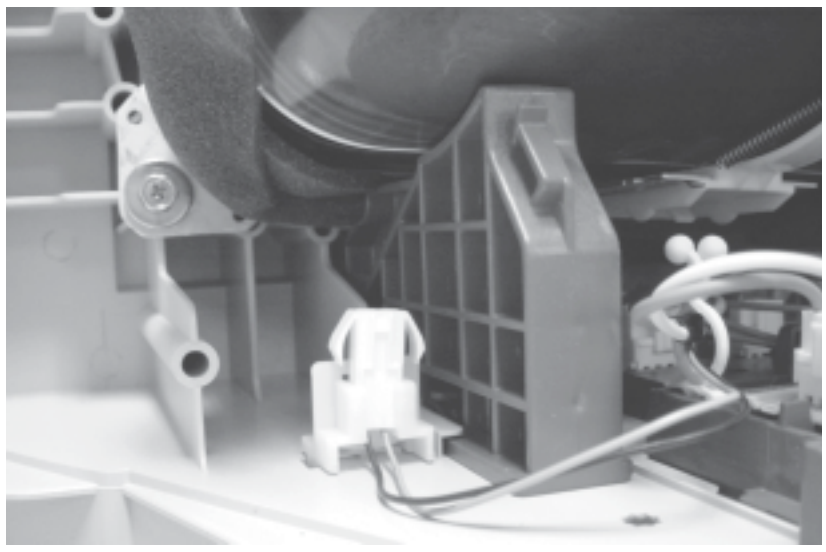
GB

SECTION 2 DISASSEMBLY

2-1. Rear Cover Removal

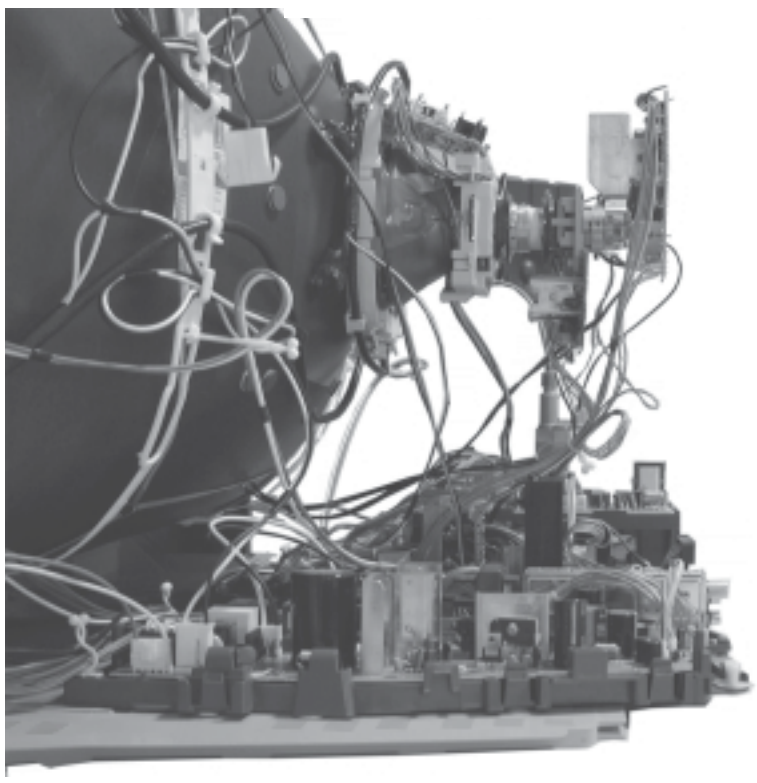
Remove the rear cover fixing screws indicated and pull the rear cover backwards away from the set. Take care when removing the rear cover not to damage the speaker cable [Disconnect the speaker connector] a speaker is fitted inside the rear cover.

2-2. Speaker Connector Disconnection

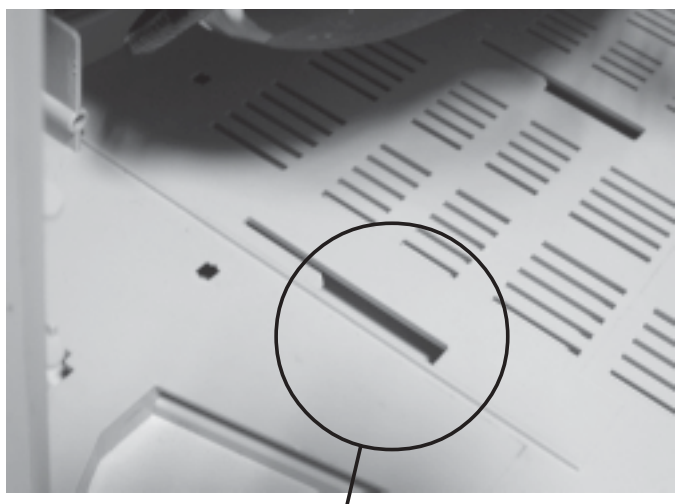


Before completely removing the rear cover disconnect the speaker connector which is located on the inside of the set.

2-3. Chassis Removal and Refitting

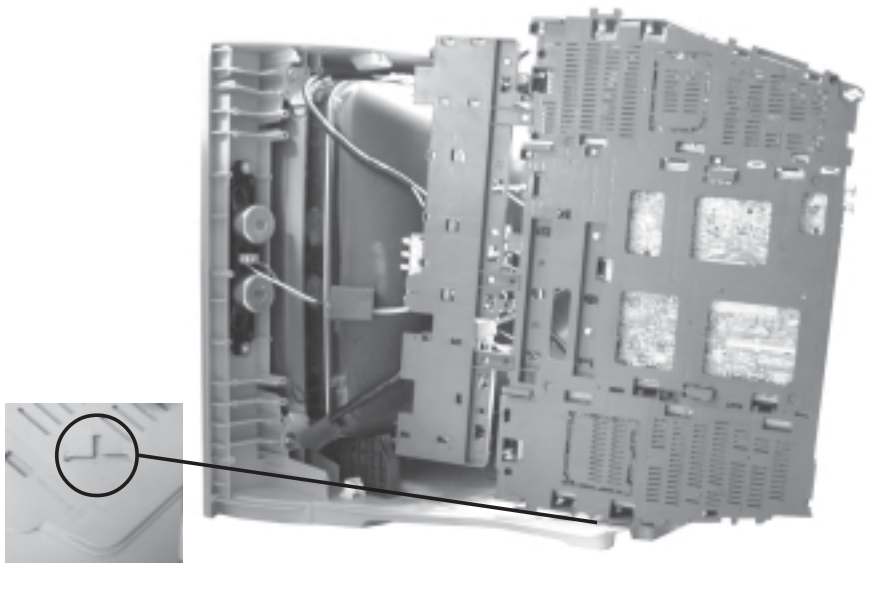


To remove lift the main bracket rear slightly and slide the chassis away from the beznet. Ensure that the interconnecting leads are released from their purse locks to prevent damage being caused.



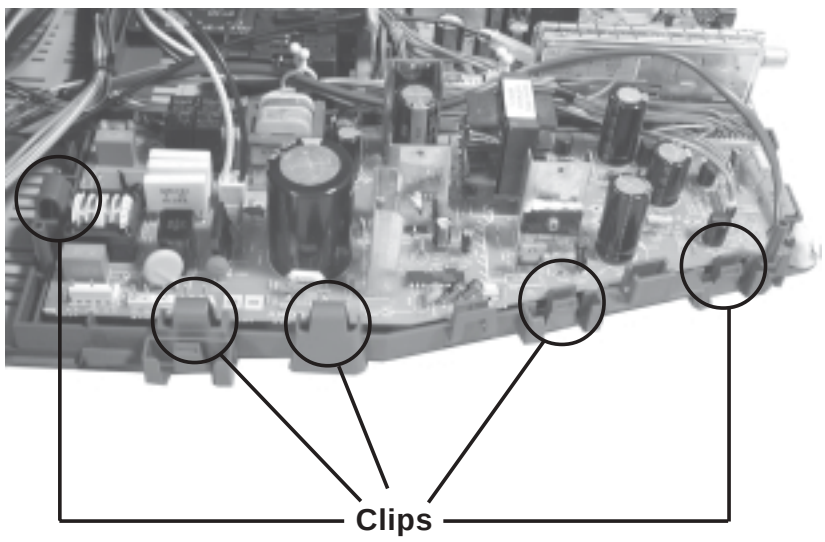
When refitting the chassis ensure that the main bracket is located in the beznet guide slots before sliding the chassis forwards. Refit the inter-connecting leads in their respective purse locks.

2-4. Service Position



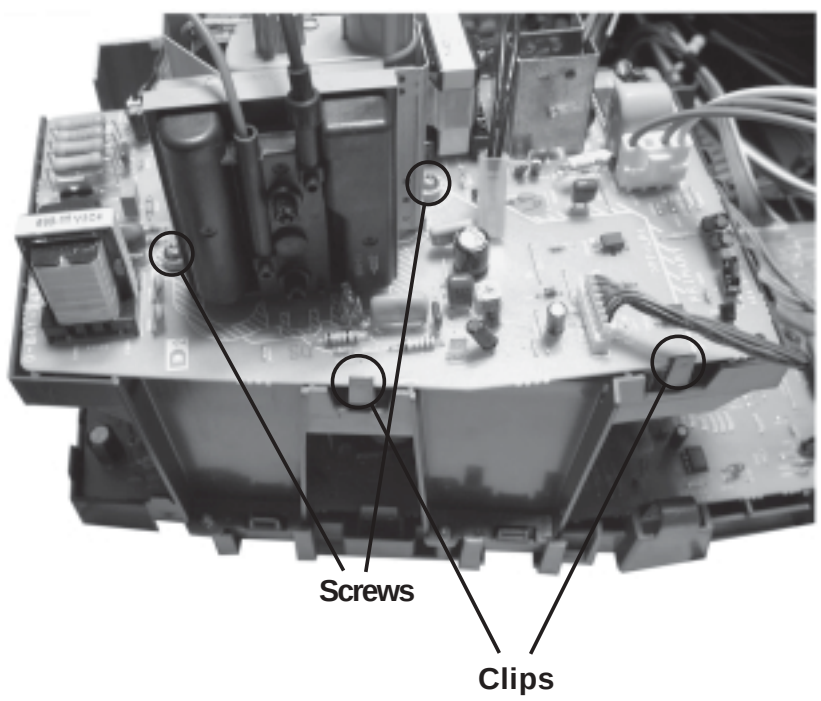
To place the chassis in the service position, insert the main bracket firmly into the T-slot located on the left corner of the beznet as indicated (see inset). To gain access to the underside of the boards follow the instructions on page 17. [Removal and Replacement of the main bracket bottom plates].

2-5. G Board Removal



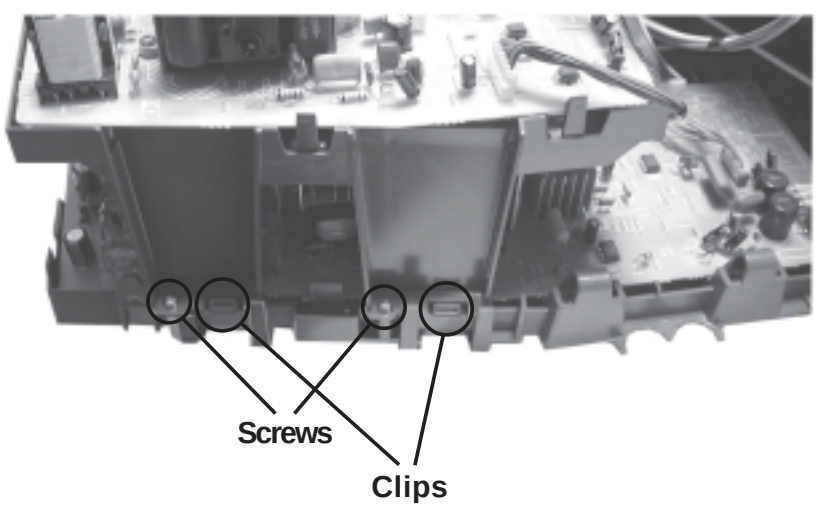
To remove the G Board remove the two screws from the middle of the board, release the clips circled and ease the board gently away from the support bracket.

2-6. D2 Board Removal



To remove the D2 board remove the two screws circled, release the clips circled and ease the board gently away from the support bracket.

2-7. D Board Removal

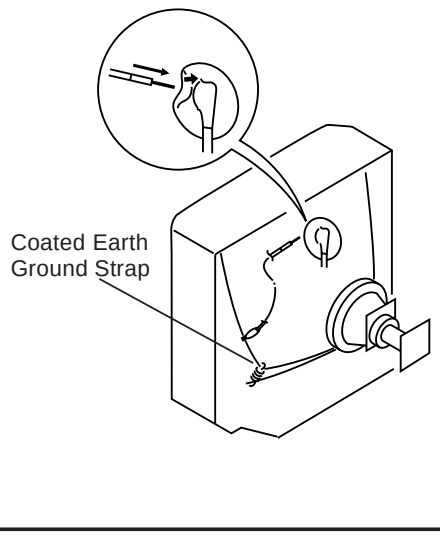


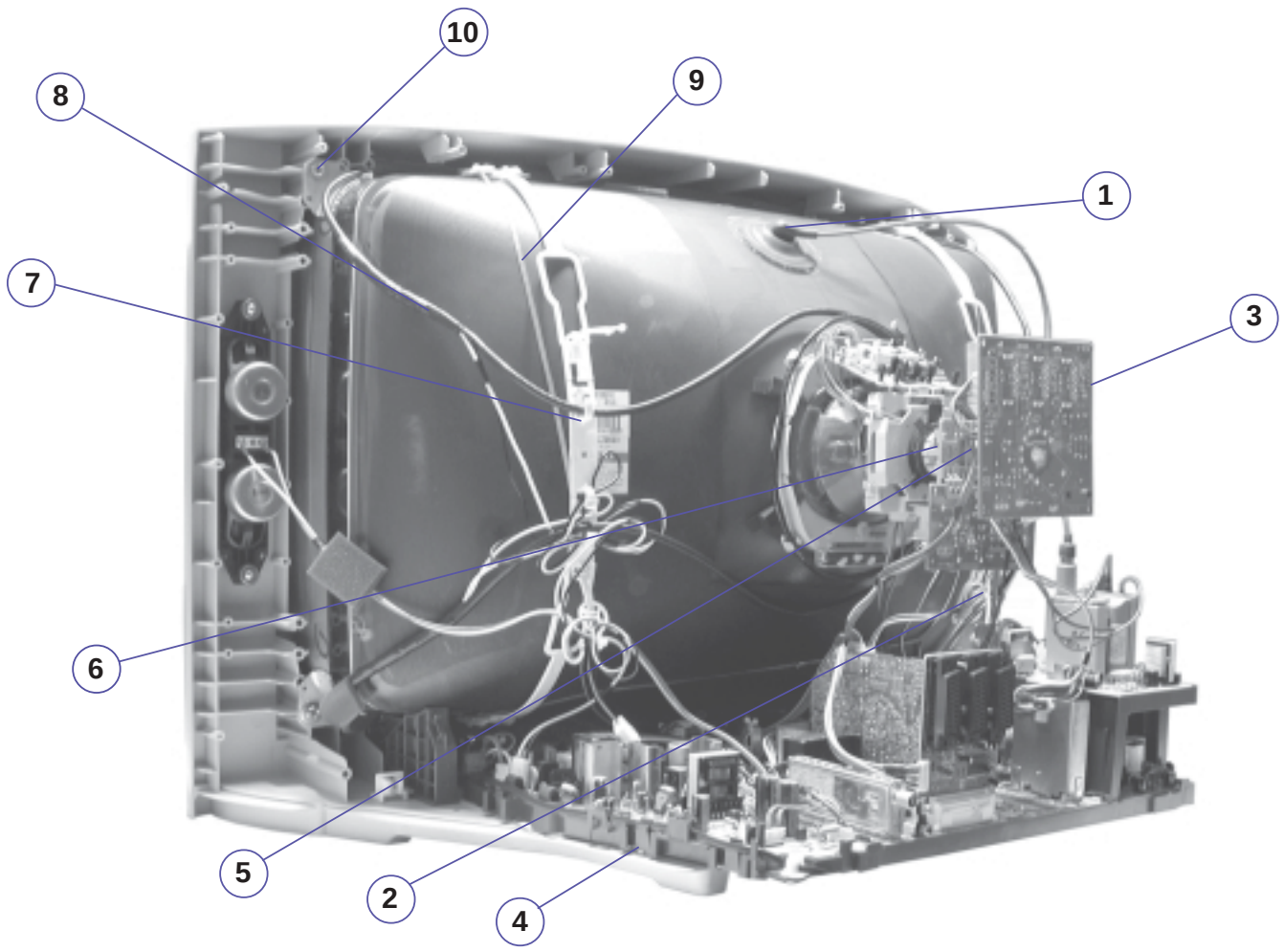
To remove the D board first remove the D2 bracket by removing the two screws circled and releasing the four clips (two on each side of the bracket). The D board can then be removed using the same method as the G board but with the necessity to remove only one screw from the middle of the D board.

2-8. Picture Tube Removal

WARNING:
BEFORE REMOVING
THE ANODE CAP

High voltage remains in the CRT even after the power is disconnected. To avoid electric shock, discharge CRT ***before*** attempting to remove the anode cap. Short between anode and CRT coated earth ground strap.

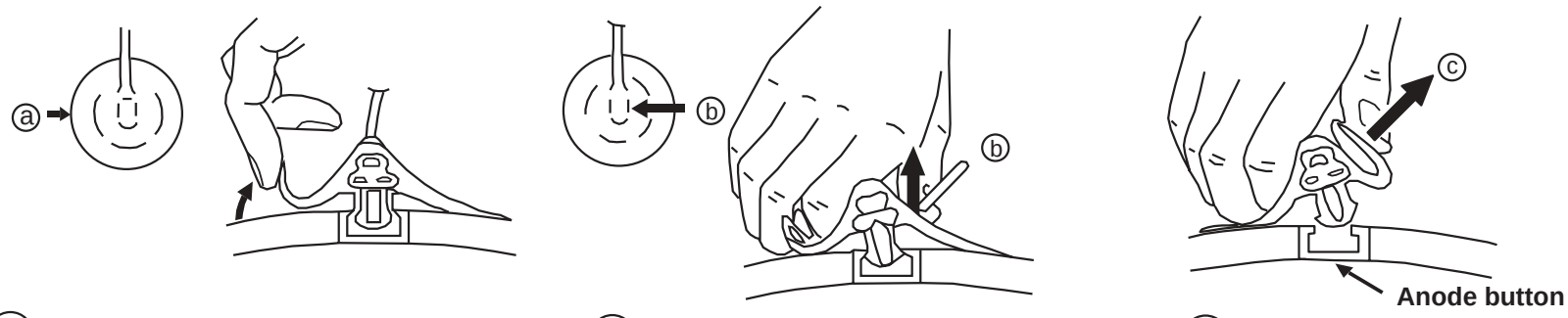




1. Discharge the anode of the CRT and remove the anode cap.
2. Unplug all interconnecting leads from the Deflection yoke, neck assy, degaussing coils and CRT grounding strap.
3. Remove the C Board from the CRT.
4. Remove the chassis assembly.
5. Loosen the Neck assembly fixing screw and remove.
6. Loosen the Deflection yoke fixing screw and remove.
7. Place the set with the CRT face down on a cushion and remove the Degaussing Coil holders.
8. Remove the Degaussing Coils.
9. Remove the CRT grounding strap and spring tensioners.
10. Unscrew the four CRT fixing screws [located on each CRT corner] and remove the CRT.
    [Take care not to handle the CRT by the neck.]

Removal of the Anode-Cap

REMOVAL PROCEDURE.



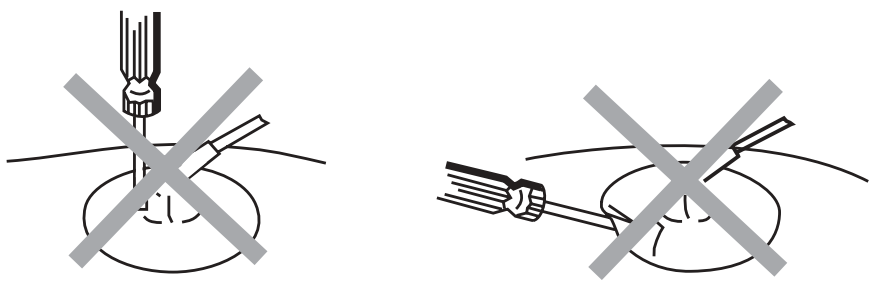
① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

How to handle the Anode-Cap

1. To prevent damaging the surface of the anode-cap do not use sharp materials.
2. Do not apply too great a pressure on the rubber, as this may cause damage to the anode connector.
3. A metal fitting called a shatter hook terminal is fitted inside the rubber cap.
4. Do not turn the rubber foot over excessively, this may cause damage if the shatter hook sticks out.

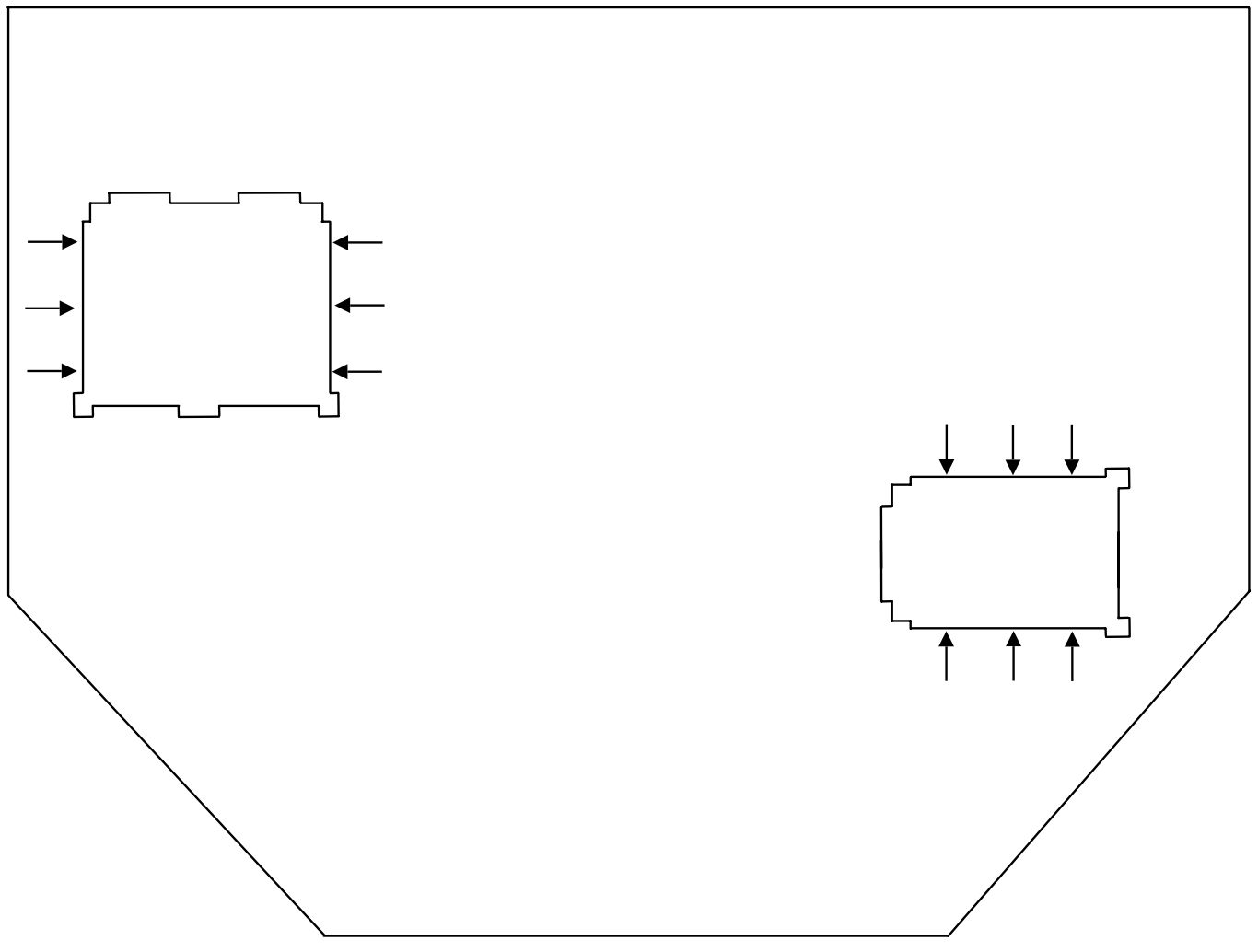


REMOVAL AND REPLACEMENT OF THE MAIN-BRACKET BOTTOM PLATES.

(1) REMOVING THE PLATES

In the event of servicing being required to the solder side of the printed wiring boards, the bottom plates fitted to the main chassis bracket require to be removed. This is performed by cutting the gates with a sharp wire cutter at the locations indicated by the arrows.

Note : There are 2 plates fitted to the main bracket. Only remove the necessary plate to gain access to the printed wiring board.

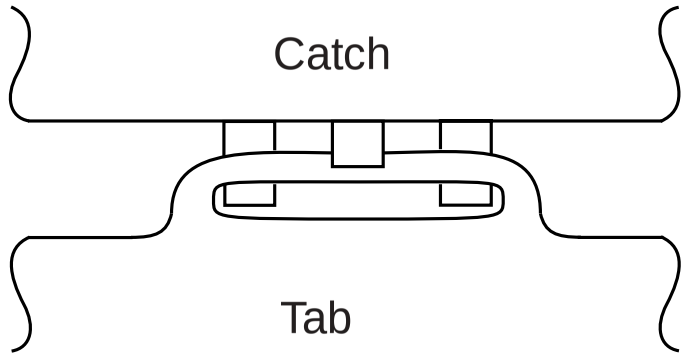


⚠ **For safety reasons, on no account should the plates be removed and not refitted after servicing.**

(2) REFITTING THE PLATES

Because the plates differ in size it is important that the correct plates are refitted in their original location.

Please note that the plates need to be rotated 180 degrees from their cut position to allow the tabs to be fitted into their catch positions.



SECTION 3 SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to the following settings :

  Contrast ..... normal

  Brightness ..... normal

Carry out the adjustments in the following order :

3-1. Beam Landing.
3-2. Convergence.
3-3. Focus.
3-4. White Balance.

Note : Test equipment required.
1. Color bar/pattern generator.
2. Degausser.
3. Oscilloscope.
4. Digital multimeter.

3-1. Beam Landing

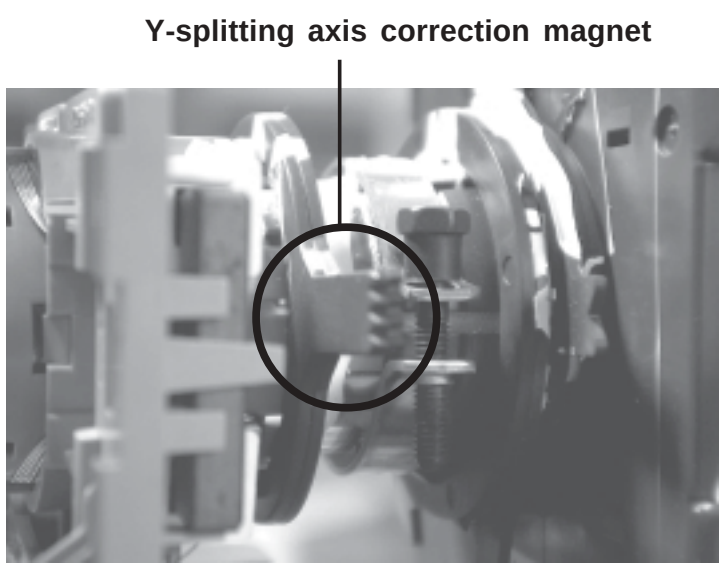
Preparation :

1. In order to reduce the influence of geomagnetism on the set's picture tube, face it in an easterly or westerly direction.
2. Switch on the TV set's power and degauss with a degausser.

(1) Adjustment of Correction Magnet for Y-Splitting Axis.

1. Input a crosshatch signal from the pattern generator.
2. Set the Picture control to minimum and confirm that the Brightness control is set to normal.
3. Position the neck assembly as indicated in Fig.3-2.
4. Loosen the deflection yoke fixing screw.
5. Move the deflection yoke as far forward as is possible.
6. Adjust the upper and lower pin symmetrically by opening or closing the Y-splitting axis correction magnets located on the neck assembly. [See Fig 3-3]
7. Return the deflection yoke to its original position and re-tighten its fixing screw.

Fig.3-1



Caution :

High voltages are present on the Deflection yoke terminals - take care when handling the Deflection yoke whilst carrying out adjustments.

(2) Landing

Note : Before carrying out the following adjustments adjust the magnets as indicated [See Fig.3-4].

1. Input a crosshatch signal from the signal generator.
2. Rough-adjust the focus and horizontal convergence.
3. Switch from the crosshatch pattern to an all-red pattern.
4. Move the deflection yoke backwards and adjust with the purity magnet so that the red is at the centre and it aligns symmetrically [See Fig.3-5].
5. Move the deflection yoke forward to the point where the entire screen just becomes red [Mark its position].
6. Move the deflection yoke further forward until the screen just changes colour at the edges. [Mark its position]
7. Position the deflection yoke between the two marks indicated above.
8. Input a crosshatch pattern from the pattern generator and rotate the deflection yoke so that the horizontal lines are parallel with the top and bottom of the screen.
9. When the position of the deflection yoke has been determined, fasten it with its fixing screw.
10. Switch the pattern generator to green then blue and confirm the purity.
11. If the beam does not land correctly in all the corners of the screen, use disk magnets to correct it. [Confirm the corner landing for green and blue]

Fig.3-2

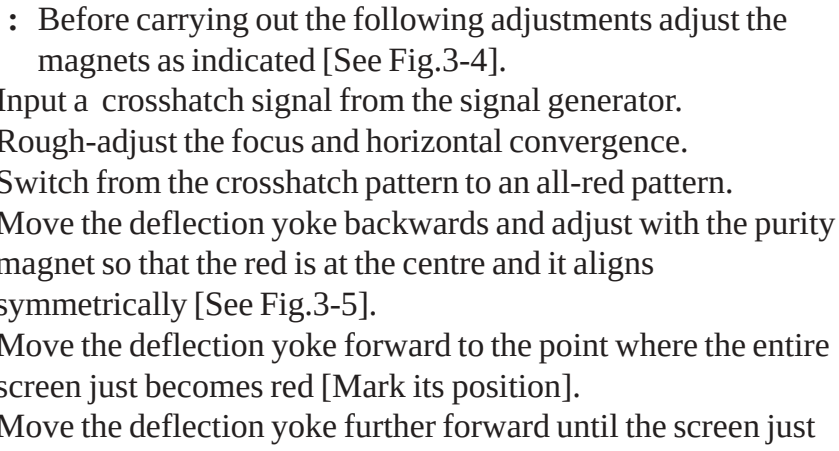
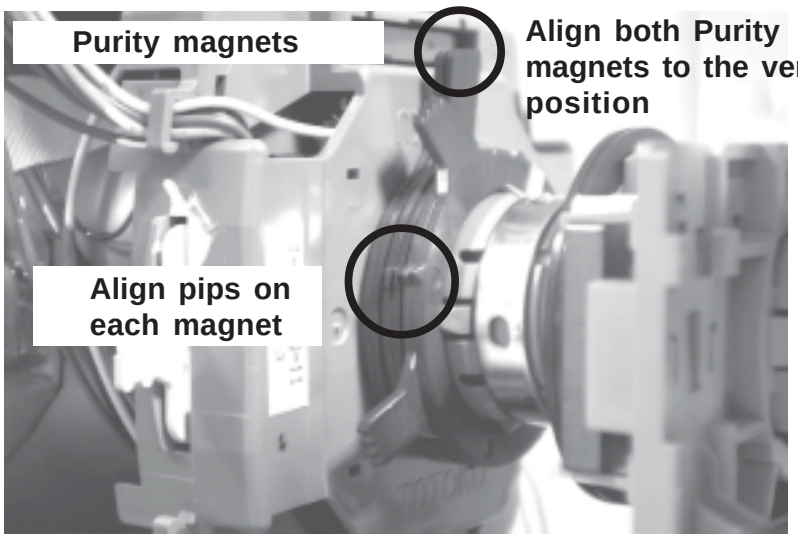
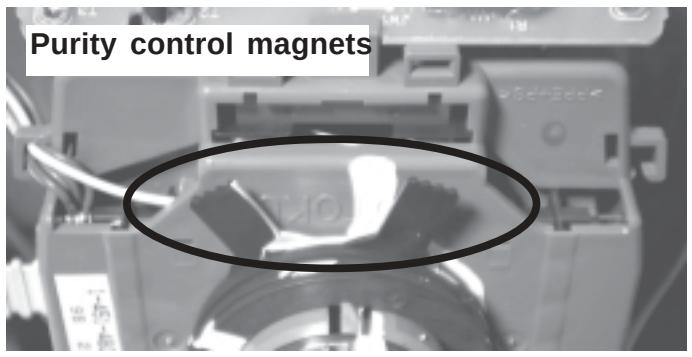


Fig.3-3

Fig.3-4



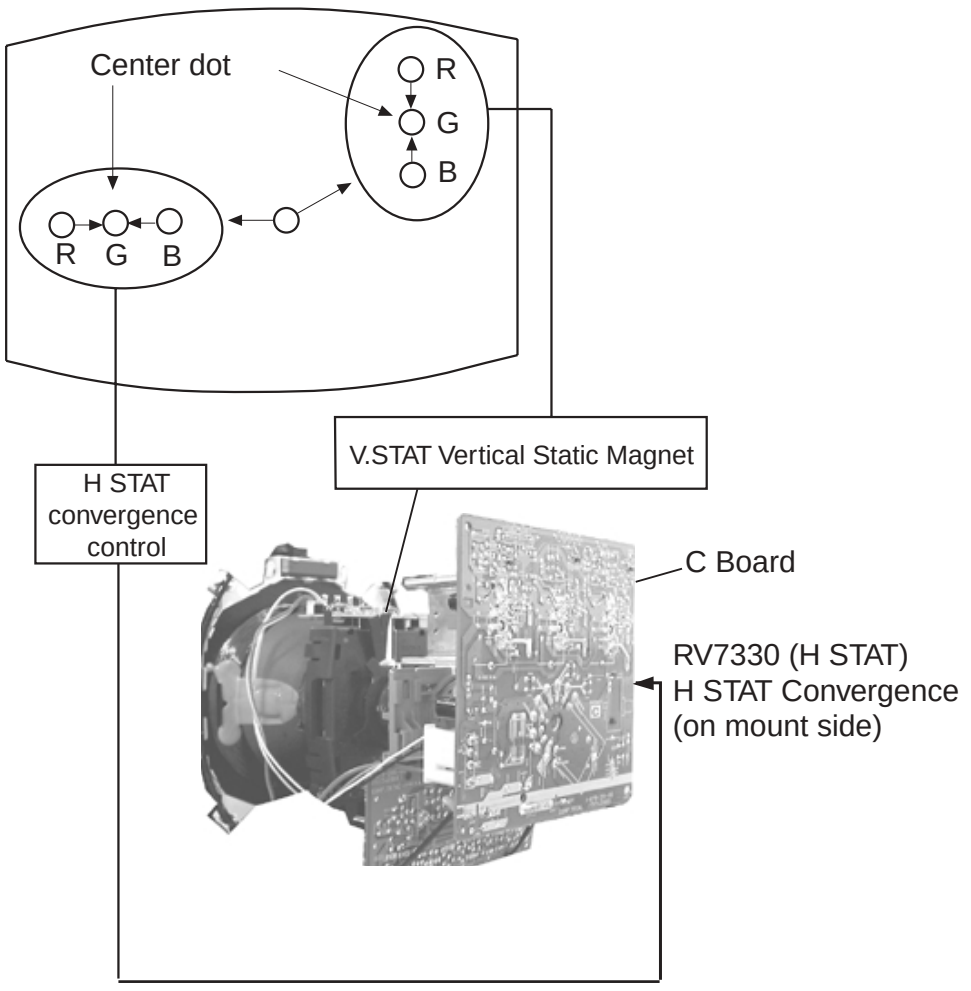


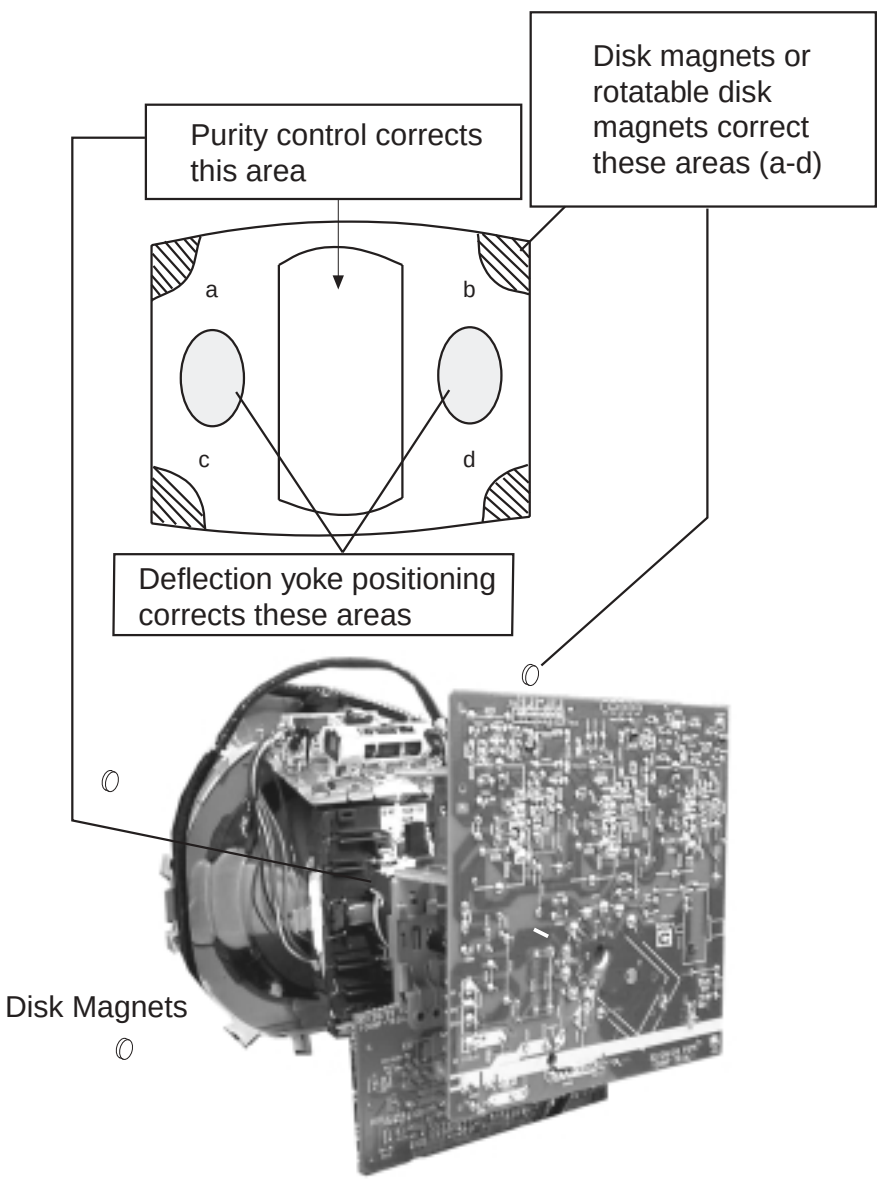
3-2. Convergence

(1) Screen centre convergence [Static convergence]

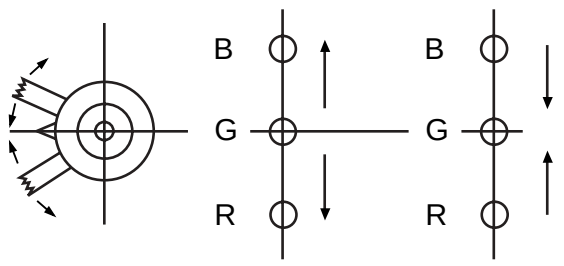
1. Input a dot pattern signal from the pattern generator.
2. Normalize the picture setting.
3. [Moving vertically], adjust the V.STAT magnet so that the vertical red, green and blue dots coincide at the centre of the screen.

Fig.3-5





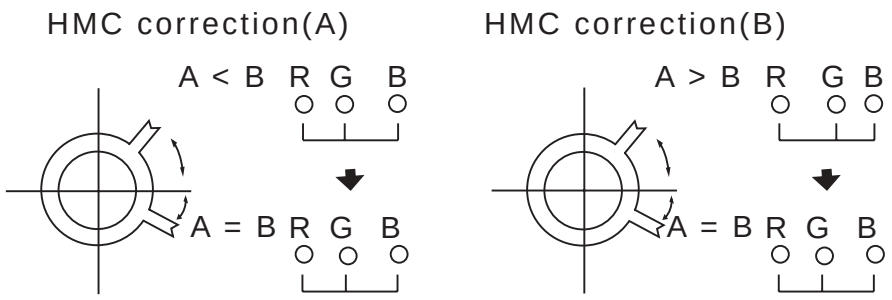
By opening or closing the V.STAT magnet, the red green and blue dots move in the direction indicated below.



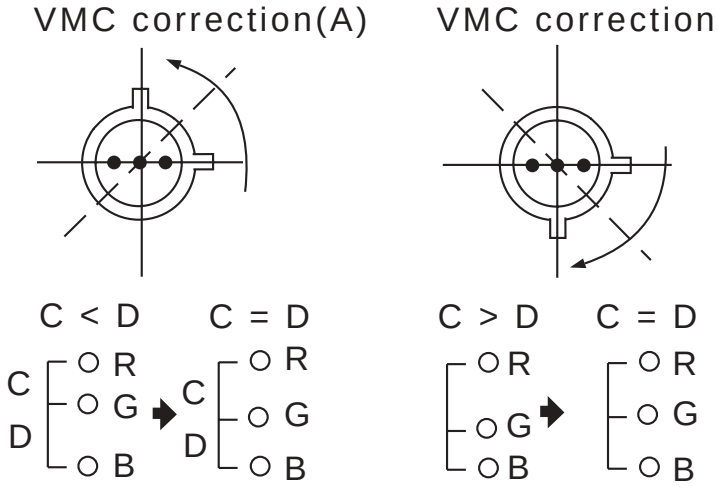
Note: Do not adjust the H.STAT by rotating the V.STAT magnets as this can affect the focus setting.

4. Correction for HMC [Horizontal mis-convergence] and VMC [Vertical mis-convergence] by using the BMC [Hexapole] magnet.

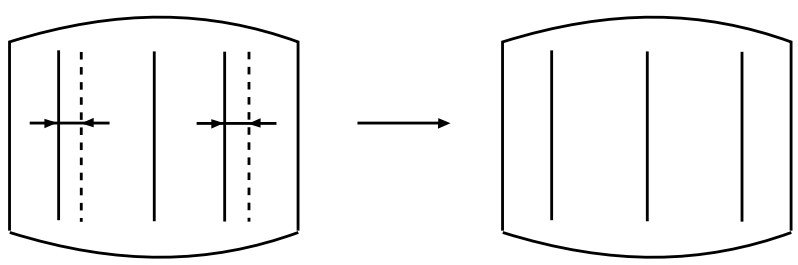
a). HMC correction by BMC [Hexapole] magnet and movement of the electron beam.



b). VMC correction by BMC [Hexapole] magnet and movement of the electron beam.

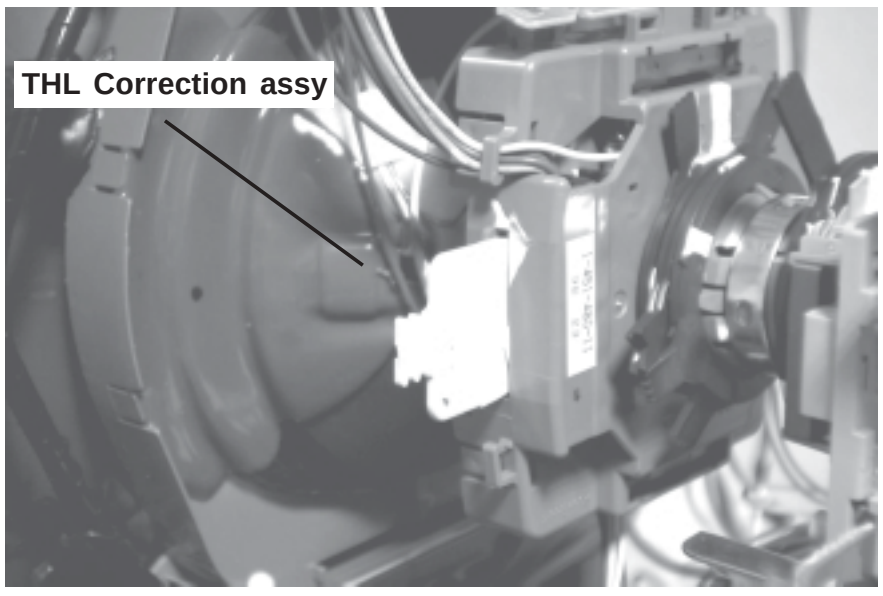


HAMP Adjustment

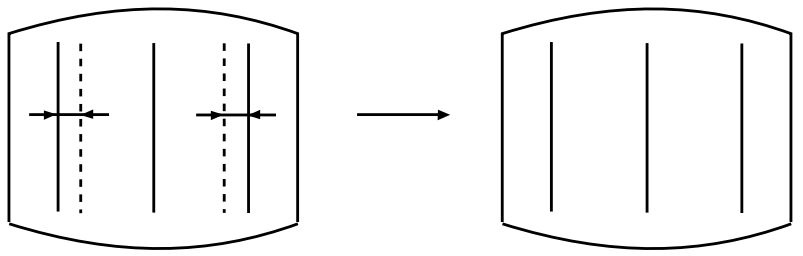


Adjust the HAMP using HAMPL and HAMPR registers in the Dynamic Convergence section of the service menu.

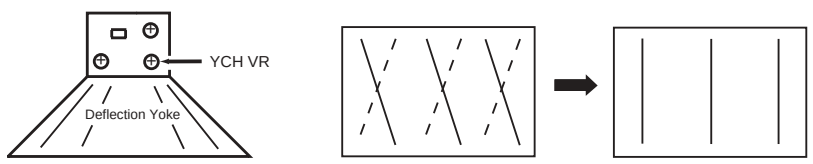
HTIL Adjustment



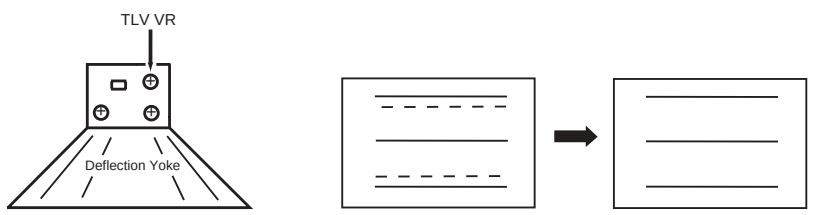
HTIL correction can be performed by adding a THL correction assembly to the Deflection yoke.



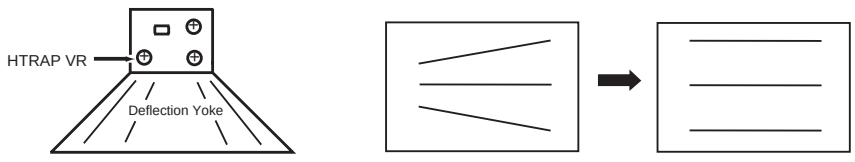
YCH Adjustment



TLV Adjustment

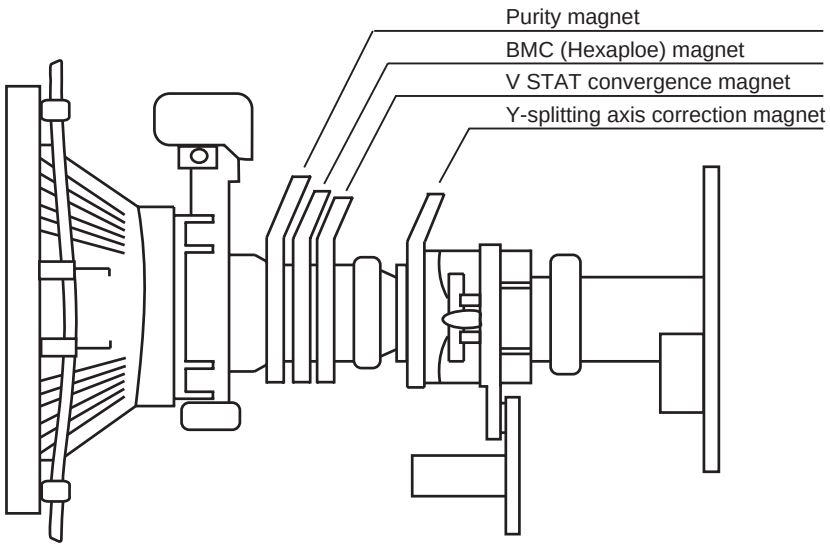


H-TRAP Adjustment

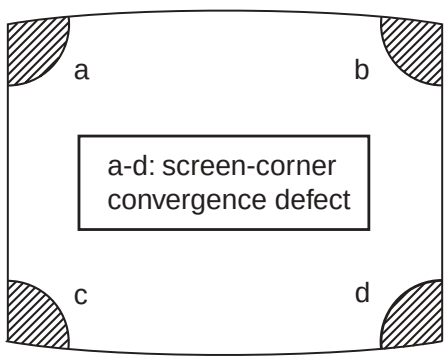


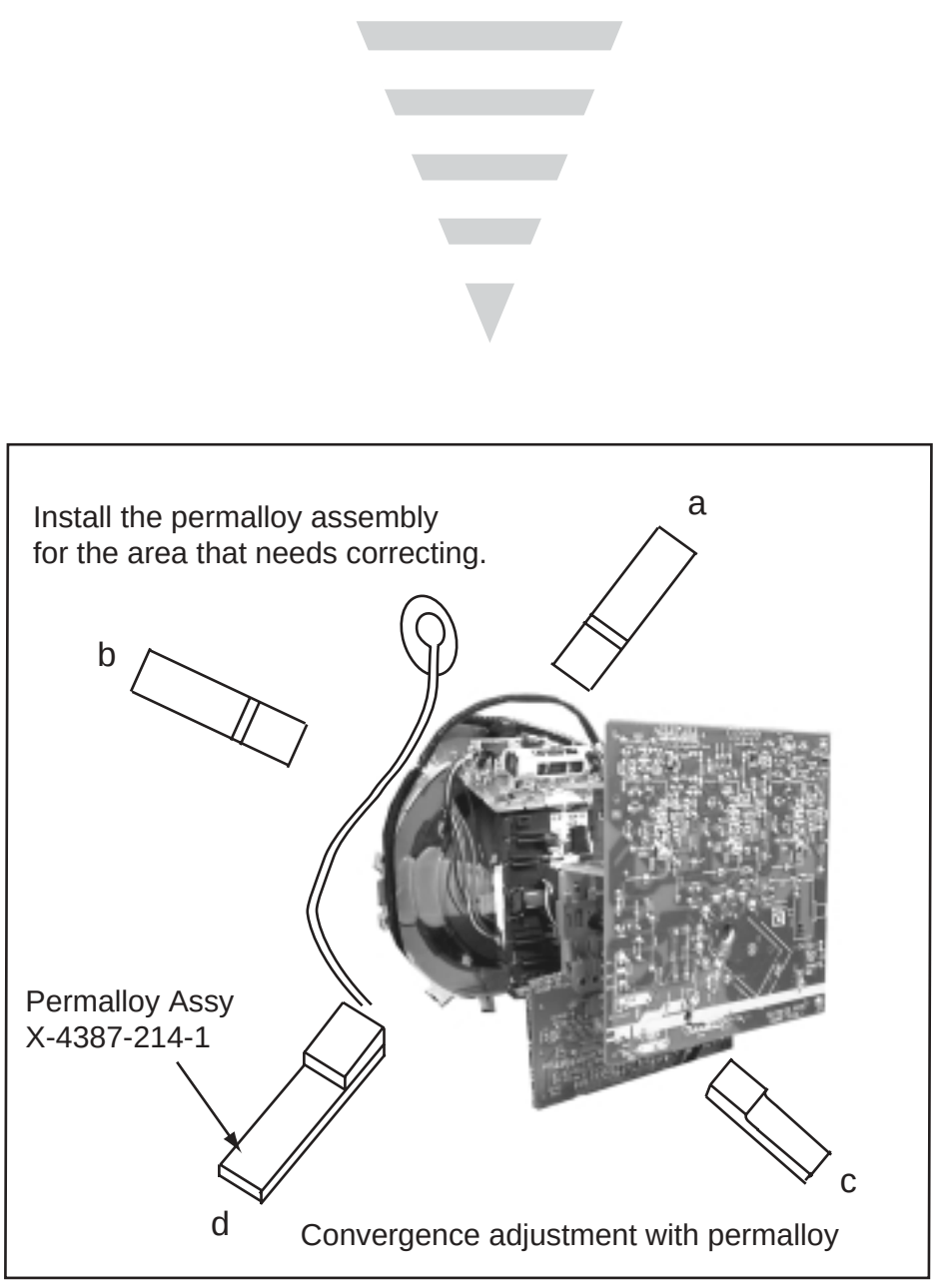
The H-TRAP should not be adjusted unless absolutely necessary as it affects the TLV settings.

Layout of each control



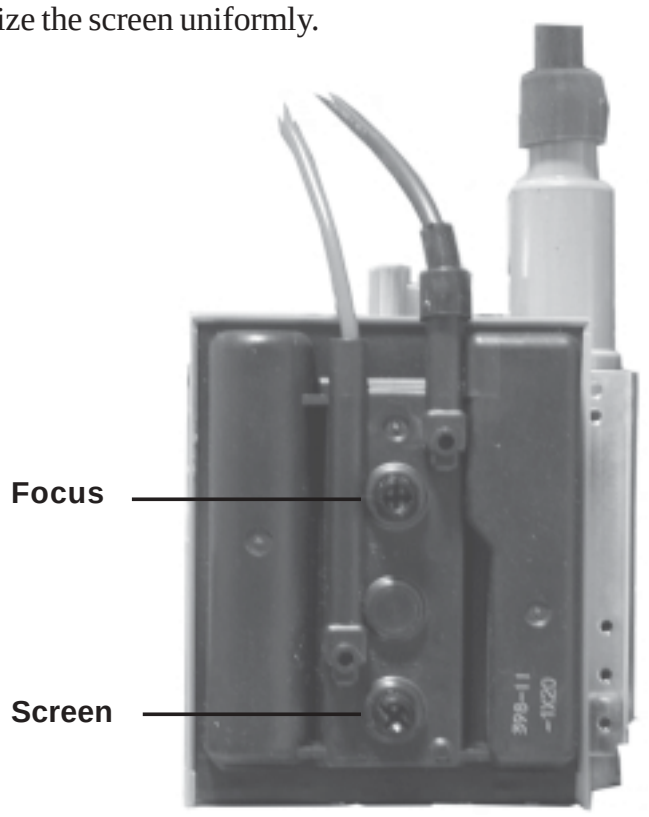
Note : If you are unable to adjust the corner convergence properly, this can be corrected with the use of permalloy magnets.





3-3. Focus Adjustment

1. Receive a television broadcast signal.
2. Normalize the picture setting.
3. Adjust the focus control located on the flyback transformer to obtain the best focus at the centre of the screen.
   Bring only the centre area of the screen into focus, the magenta-ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.



3-4. Screen (G2), White Balance

[Adjustment in the service mode using the remote commander]

G2 adjustment

1. Input a dot signal from the pattern generator.
2. Set the Picture, Brightness and Colour to minimum.
3. Apply 175V DC from an external power supply to the R, G and B cathodes of the CRT.
4. Whilst watching the picture, adjust the G2 control [SCREEN] located on the flyback transformer to the point just before the flyback return lines disappear.

White balance adjustment for TV mode

1. Input an all-white signal from the pattern generator.
2. Program the Remote Commander for operation in Service Mode. [See Page 22].
3. Enter into the ‘Service Mode’ by pressing ‘AUX/VIDEO’ button twice and ‘MENU’ on the Service Commander.
4. Select ‘Service’ from the on screen menu display and press ‘Right Arrow’.
5. The ‘Service’ menu will appear on the screen.[See Page 22]
6. Select ‘Picture’ from the on screen menu and press right arrow.
7. Select ‘Picture settings’ from the on screen menu and press right arrow and set the ‘Contrast_Max’ to MAX.
8. Select ‘White Balance’ from the on screen menu and press right arrow.
9. The ‘White Balance’ menu will appear on the screen.
10. Set the ‘Normal_PAL_RD’ to 465.
11. Adjust the ‘Normal_PAL_GD’ and the ‘Normal_PAL_BD’ so that the white balance becomes optimum.
12. Select ‘Picture settings’ from the on screen menu and press right arrow and set the ‘Contrast_Min’ to MIN.
13. Set the ‘Normal_PAL_RC’ to 121.
14. Adjust the ‘Normal_PAL_GC’ and the ‘Normal_PAL_BC’ with the left and right buttons on the commander so that the white balance becomes optimum.
15. Press the ‘OK’ button to write the data for each item.

SECTION 4 CIRCUIT ADJUSTMENTS

4-1. Electrical Adjustments

Service adjustments to this model can be performed using the supplied remote Commander RM-945.

Programming the Remote Commander for Operation in Service Mode

1. Press and hold the left Mode Select button until the VCR and DVD LED's flash.

2. Press 99999. The TV LED should light. The remote commander is now set to Service Mode.

3. To return the remote commander to normal operation mode repeat step 1. then press 00000. The TV LED should light. The remote commander is now set to normal mode.

Setting the TV into Service Mode

1. Program the remote commander for operation in Service Mode as described above.

2. Turn on the TV main power switch.

3. Press the 'aux/video' standby button on the remote commander twice.
'TT __' will appear in the upper right corner of the screen.
Other status information will also be displayed.

4. Press 'MENU' on the remote commander to obtain the following menu on the screen.

Service Main Menu:AE6BA/Y (v0.26D)	NVM VERSION:04H
Service ▶	
Design	
Error	
Select: ▲ ▼ Select Item: ▶	FACTORY INFO:FFH FFH 03H

5. Move to the corresponding adjustment item using the up or down arrow buttons on the Remote Commander.
6. Press the right arrow button to enter into the required menu item.
7. Press the 'aux/video' button on the Remote Commander to quit the Service Mode when all adjustments have been completed.

Note :

· After carrying out the service adjustments, to prevent the customer accessing the 'Service Menu' switch the TV set OFF and then ON.

Service	
Geometry ▶	
Picture	
Audio	
Select: ▲ ▼	Select Item: ▶ Previous Menu: ◀

Geometry	
Wide mode adjustment ▶	
Screen offsets	
Frequency offsets	
Select: ▲ ▼	Select Item: ▶ Previous Menu: ◀

Wide mode adjustment

Description	(min,max)	Default	Value
V AMP	(-128,127)	35	35 ▶
V ZOOM	(0,510)	256	256
V POS	(-512,511)	-10	-10
V LIN	(-128,127)	0	0
V SCORR	(-128,1270)	4	4
H WIDTH	(-256,255)	63	63
V TRAP	(-128,127)	1	1
PIN AMP	(-511,511)	-80	-80
UP COR	(-128,127)	-1	-1
LOW COR	(-128,127)	-2	-2
H POS	(-600,600)	10	10
ANGLE	(-511,511)	-1	-1
BOW	(-511,511)	8	8
H LIN	(0,255)	85	84
H TRAP	(0,255)	138	138
H SCORR	(0,255)	100	100
UP COR 6	(-128,127)	-1	-1
LOW COR 6	(-128,127)	0	0
PIN UNBAL	(-240,240)	-40	-40
MID PIN	(-240,240)	-60	-60

Select: ▲ ▼ Select Item: ▶ Previous Menu: ◀

Picture	
White balance ▶	
Colour Tone	
Picture settings	
Select: ▲ ▼	Select Item: ▶ Previous Menu: ◀

Picture settings

Description	(min,max)	Default	Value
SUBCOLOR PAL	(0,63)	31	34 ▶
SUBCOLOR SECAM	(0,63)	31	34
SHP MAXLTI	(0,31)	31	20
SHP MAXPEAK	(0,15)	15	12
CONTRAST MIN	(0,63)	17	17
CONTRAST MAX	(0,63)	59	59
BRIGHT EXPAND	(0,511)	400	400
BRIGHT CENTER	(-256,255)	10	40

Select: ▲ ▼ Select Item: ▶ Previous Menu: ◀

Audio

BBE OFF mode ▶
BBE Natural/V.Dolby offsets
BBE Dynamic offsets
BBE Cinema offsets
Subwoofer level adjustments
Audio detection thresholds

Select: ▲ ▼ Select Item: ▶ Previous Menu: ◀

BBE OFF mode

Description	(min,max)	Default	Value
SW_FREQ_OFF	(5,40)	20	20 ▶
BAND1_OFF_OFFSET	(-96,96)	0	0
BAND2_OFF_OFFSET	(-96,96)	0	0
BAND3_OFF_OFFSET	(-96,96)	0	0
BAND4_OFF_OFFSET	(-96,96)	0	0
BAND5_OFF_OFFSET	(-96,96)	0	0
BBE_LOUDNESS_OFF	(0,68)	0	0

Select: ▲ ▼ Select Item: ▶ Previous Menu: ◀

Design

CXA2149 - AVSwitch Device ▶
DDP3315 - Backend Device
MSP3411 - Sound Processor Device
TDA988x - IF Device
TUA60xx - PLL Device
VSP9427 - Video Processor Device
CXA2019 - Chroma Decoder
CXD3804 - 3D Comb Filter
CXA8070 - Dynamic Convergence Device
FRC9429 - FRCA Device
PJ Engine

Select: ▲ ▼ Select Item: ▶ Previous Menu: ◀

Error monitor

WORKING TIME:	**(Hours:Minutes)**	82:33
Error counters:		
E02: OCP		0
E03: OVP		0
E04: NO V SYNC		0
E05: IKR		0
E06: IIC		0
E07: NVM		0
E08: H PROT		0
E09: TUNER		0
E10: SOUND		0
E11: 9 VOLTS		0
E12: SCANRATE		0
E13: 3DCOMB		0
E14: BACKEND		0
E15: DYNCON		0
E16: HIGH VOLTAGE		0
E17: AVSWITCH		0
E18: CHROMA DEC		0
E19: FRCA		0
E20: PJ ENG		0
E21: DAC		0
E24: SPEAKER PROT		0
E25: MEMORY STICK		0

Select: ▲ ▼ Previous Menu: ◀

Sub Brightness Adjustment

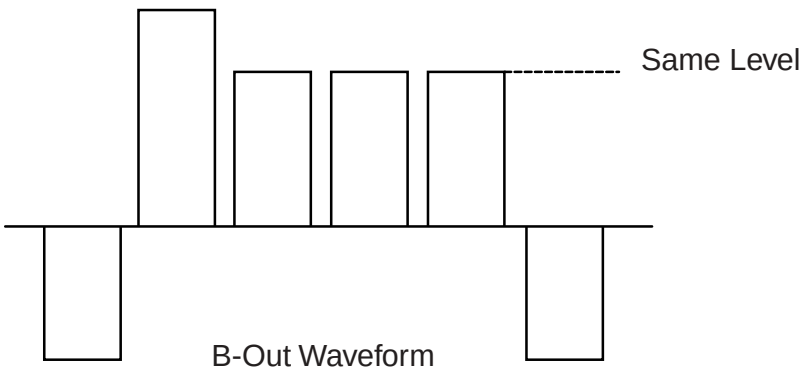
1. Input a Monoscope pattern.
2. Program the Remote Commander for operation in Service Mode. [See Page 22].
3. Press ‘AUX/VIDEO’ ‘AUX/VIDEO’ 13 on the Remote Commander.
4. Adjust the ‘Sub-Brightness’ data so that there is barely a difference between the 0 IRE and 10 IRE signal levels.

Sub Contrast Adjustment

1. Input a video signal that contains a small 100% white area on a black background.
2. Connect an oscilloscope to Pin 10 of J7330 [C Board].
3. Program the Remote Commander for operation in Service Mode. [See Page 22].
4. Adjust the Sub-Contrast
   [Using ‘AUX/VIDEO’ ‘AUX/VIDEO’ ‘11’] to obtain a voltage of 114 +0/- 5V.

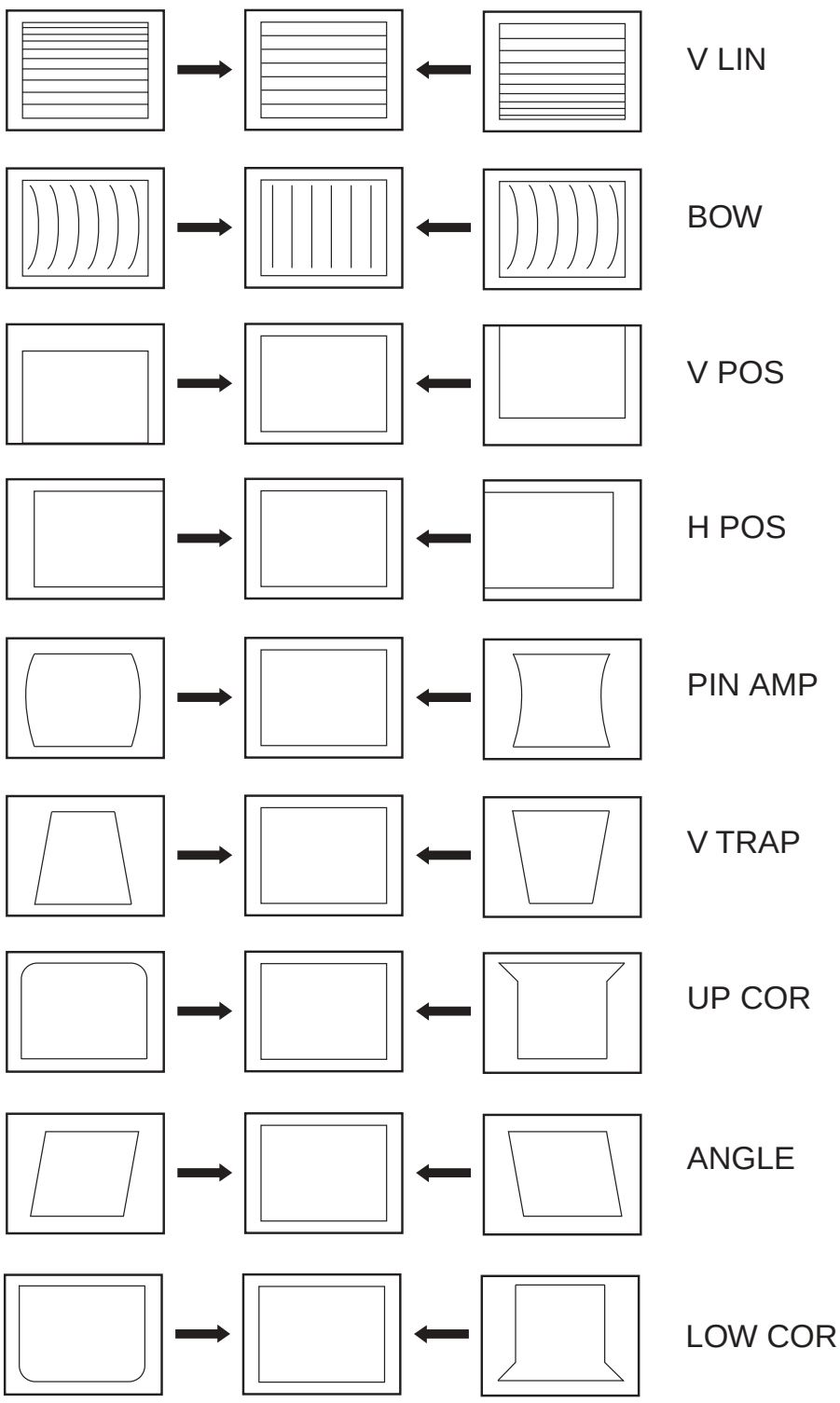
Sub Colour Adjustment

1. Receive a PAL colour bar signal.
2. Connect an oscilloscope to Pin 5 of CN7331 [C Board].
3. Program the Remote Commander for operation in Service Mode. [See Page 22].
4. Adjust the ‘Sub Colour’ [Using ‘AUX/VIDEO’ ‘AUX/VIDEO’ ‘12’] so that the Cyan, Magenta and Blue colour bars are of equal levels as indicated below.



Deflection System Adjustment

1. Program the Remote Commander for operation in Service Mode. [See Page 22] and enter into the ‘Geometry’ service menu, Wide mode adjustment.
2. Select and adjust each item in order to obtain the optimum image.

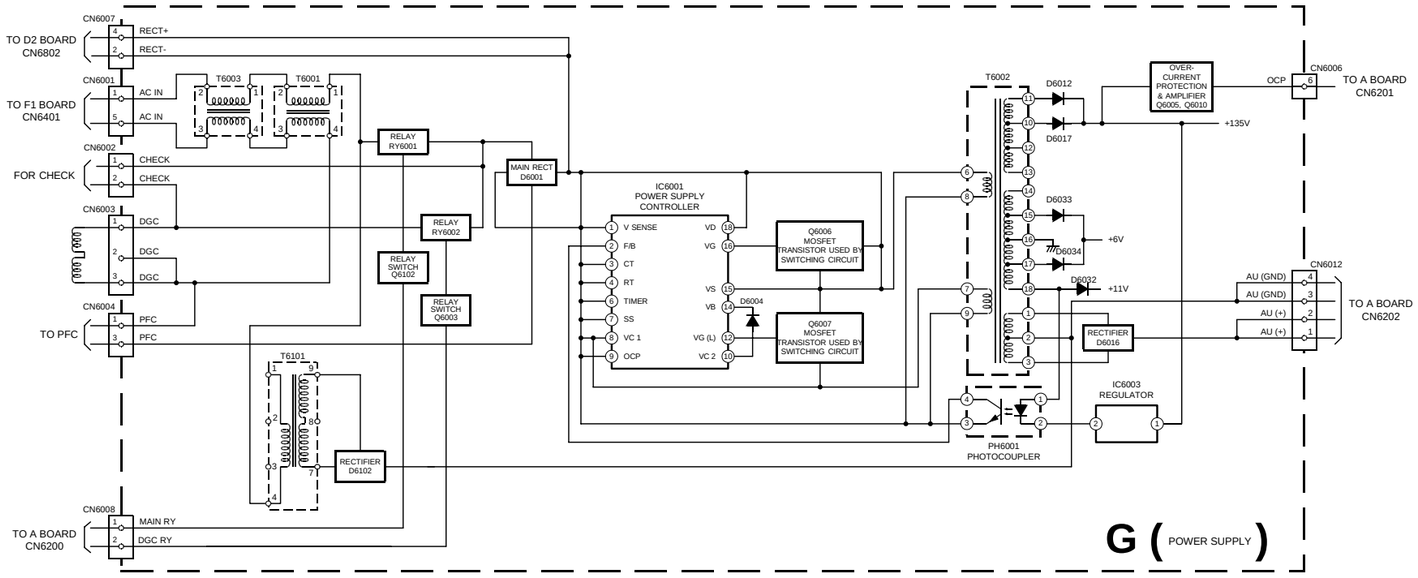


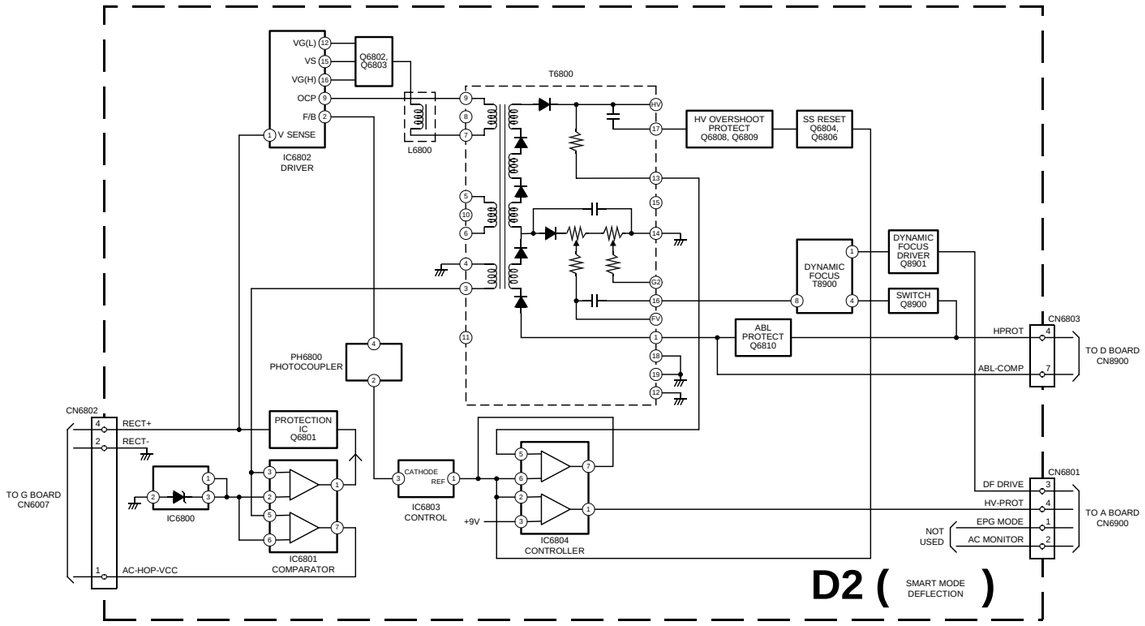
4-2. TEST MODE 2:

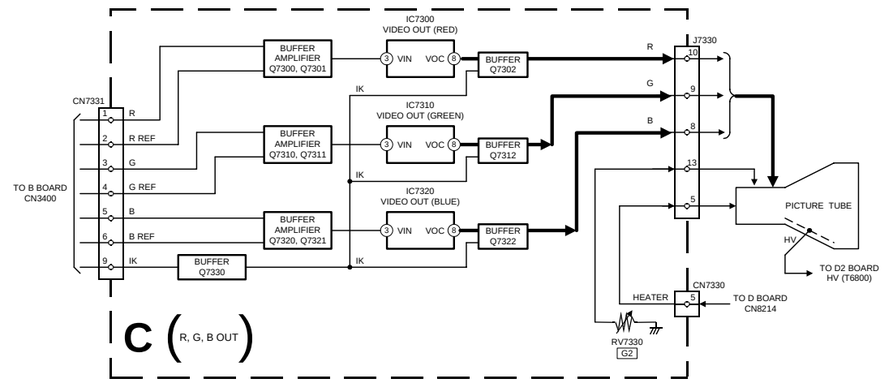
Test Mode 2 is available by programming the Remote Commander for operation in Service Mode [As shown on Page 22] then pressing the ‘AUX/VIDEO’ button twice, OSD ‘TT’ appears. The functions described below are available by selecting the two numbers. To release ‘Test mode 2’, press 00, or switch the TV set into Stand-by mode.

00	'TT' mode off
01	Set picture level to maximum
02	Set picture level to minimum
03	Set speaker/headphone Volume to 35%
04	Set speaker/headphone Volume to 50%
05	Set speaker/headphone Volume to 65%
06	Set speaker/headphone Volume to 80%
07	Ageing mode on
08	Shipping Condition
11	Sub picture adjustment
12	Sub colour adjustment
13	Sub brightness adjustment
15	Rotation coil test
16	Picture level 50%
19	Factory mode enable/disable
21	Destination ADEKR
22	Destination BL
24	Destination U
35	Wide model selection
36	VM off/on test
43	Select Dual A sound
44	Select Dual B sound
45	Select Mono sound
46	Select Stereo sound
49	Set NVM as virgin
53	FM Overmodulation enable/disable
62	AM from baseband enable/disable
73	Enable Zweiton D/K2 system (6.5/6.74)
74	Enable Zweiton D/K3 system (6.5/6.74)
78	Balance full left
79	Balance full right
87	Local keys test
91	Set 14:9 zoom mode
92	Set Smart zoom mode
93	Set 16:9 zoom mode
94	Set ZOOM zoom mode
95	Set 4:3 zoom mode
96	Set Smart zoom mode (for FX66)
99	DisplayError and Working Time menu

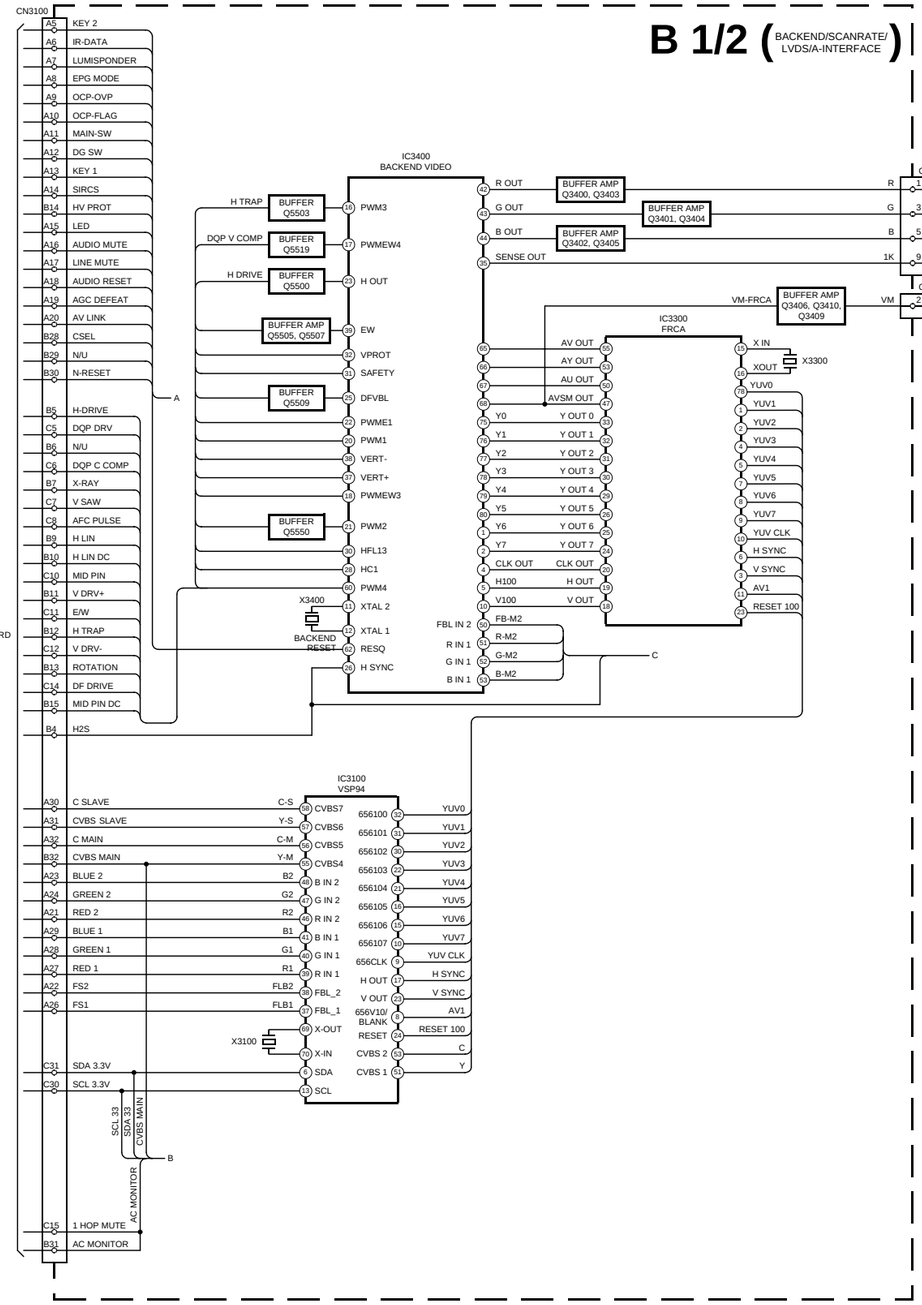
5-1. BLOCK DIAGRAMS (1)

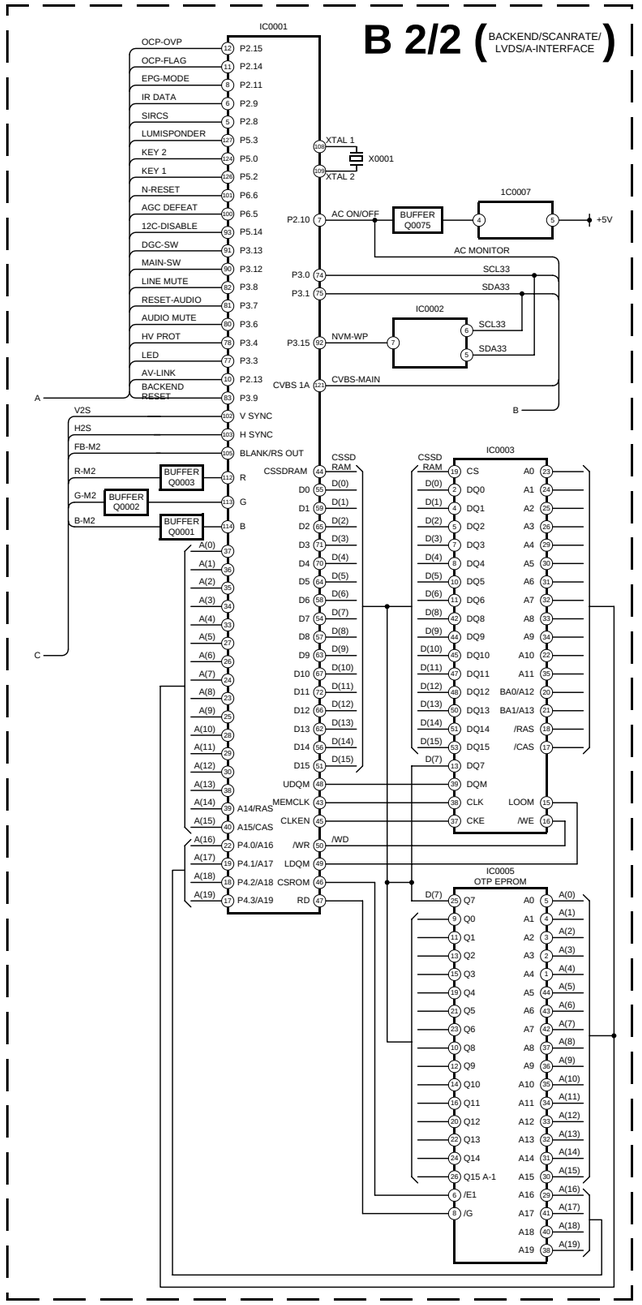




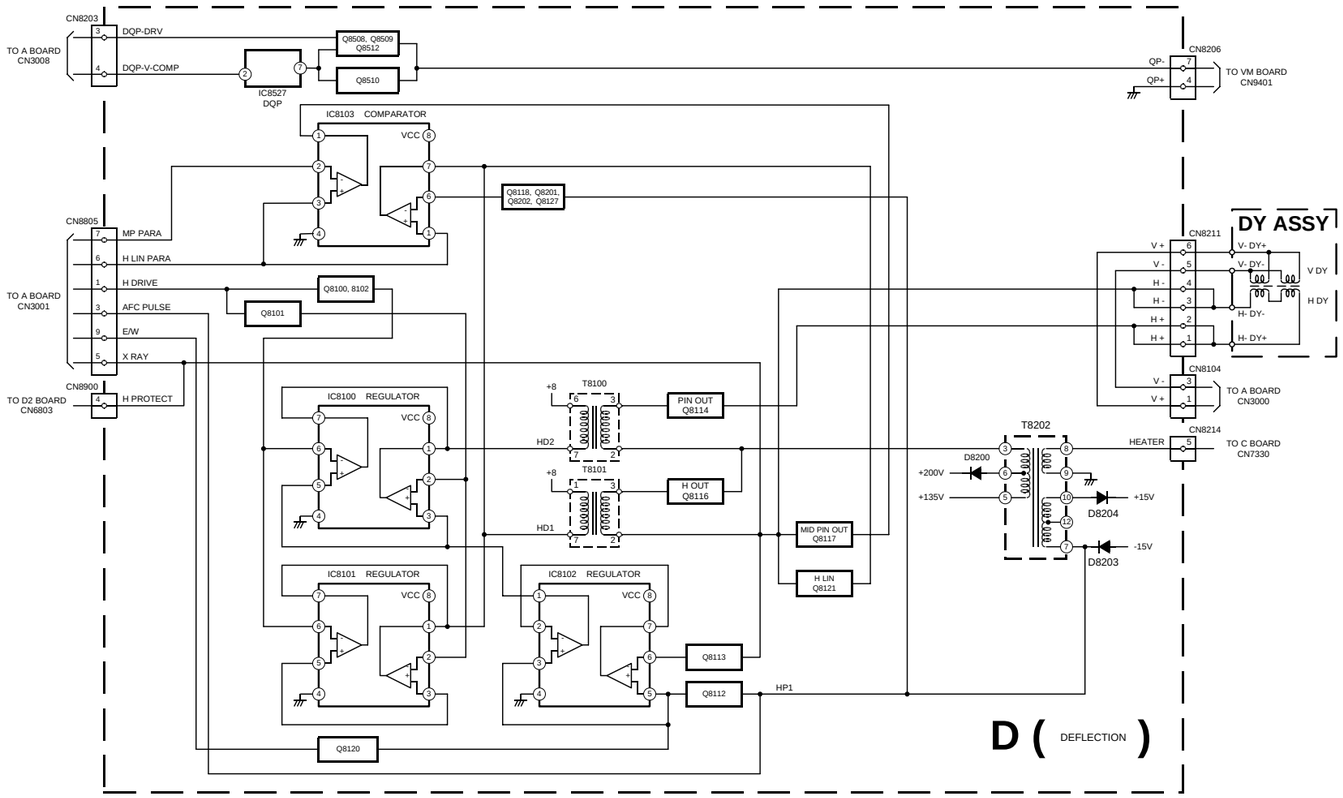


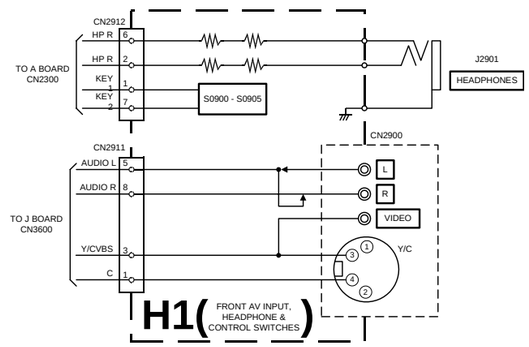
5-1. BLOCK DIAGRAMS (2)

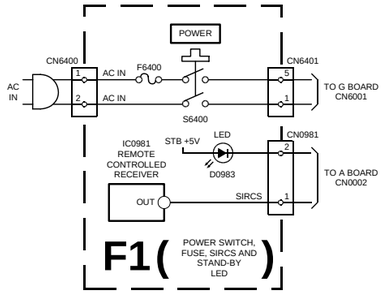


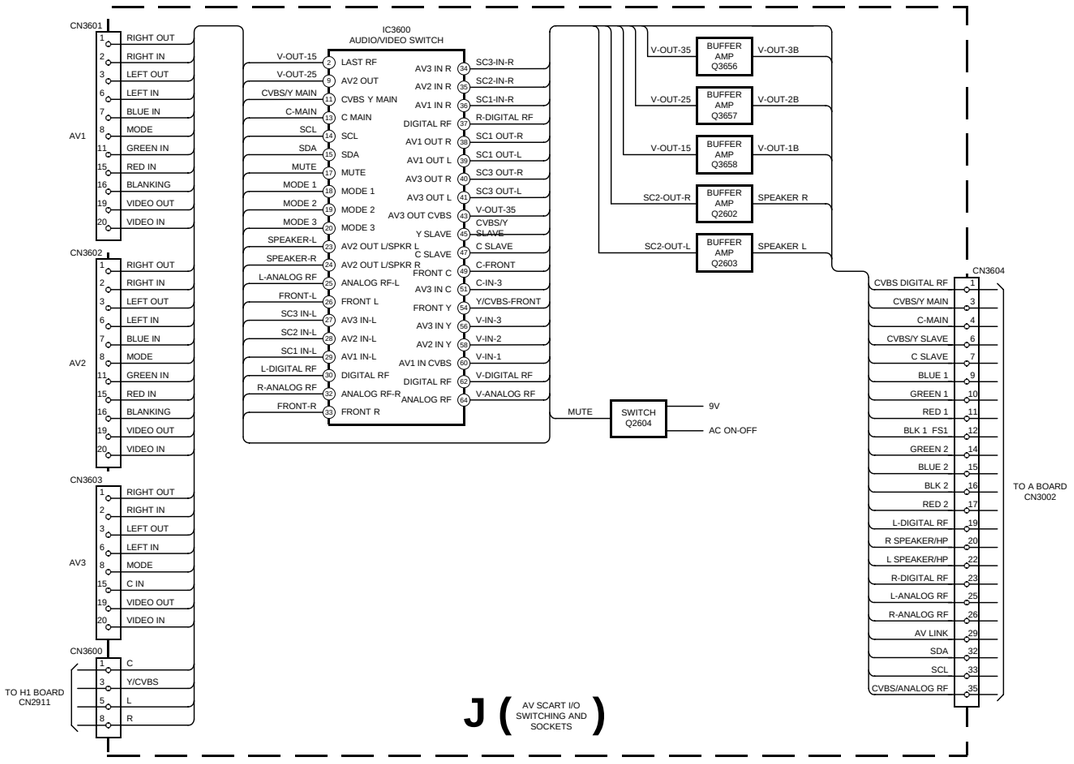


5-1. BLOCK DIAGRAMS (3)

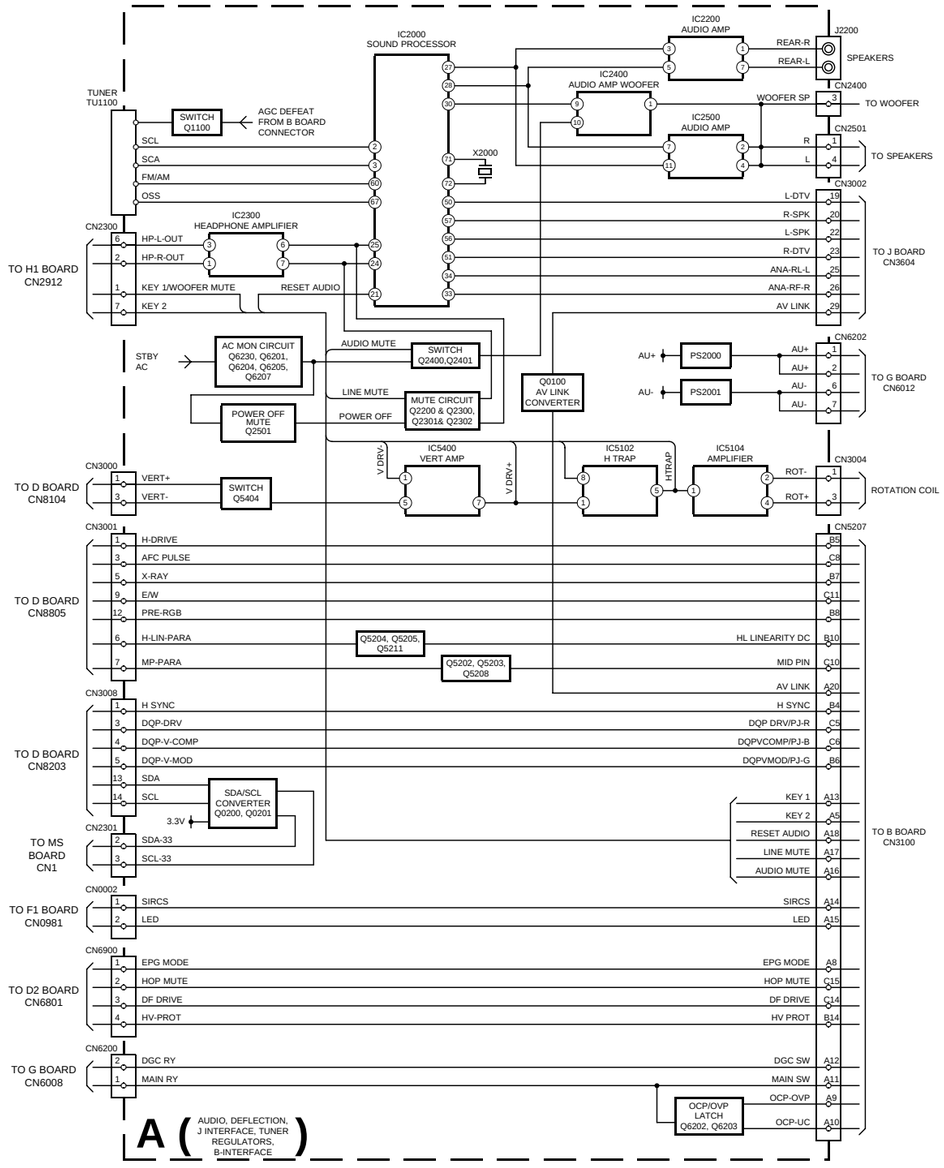




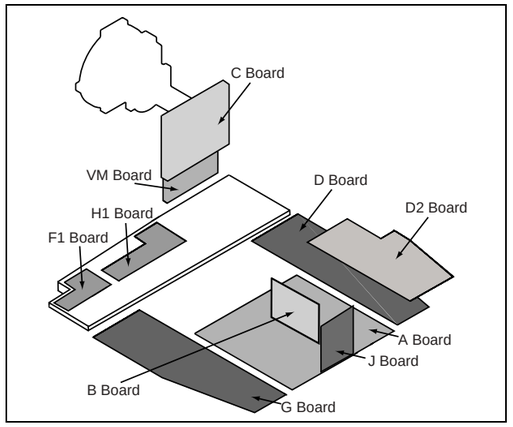




5-1. BLOCK DIAGRAMS (4)



5-2. CIRCUIT BOARD LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in µF unless otherwise noted.
- pF : µµF 50WV or less are not indicated except for electrolytic types.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm
Electrical power rating : 1/4W

- Chip resistors are 1/10W
- All resistors are in ohms.
  k = 1000 ohms, M = 1000,000 ohms
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in Volts.
- Readings are taken with a 10Mohm digital mutimeter.
- Readings are taken with a color bar input signal.
- Voltage variations may be noted due to normal production tolerences.
- : B + bus.
- : B - bus.
- : RF signal path.
- : earth - ground.
- : earth - chassis.

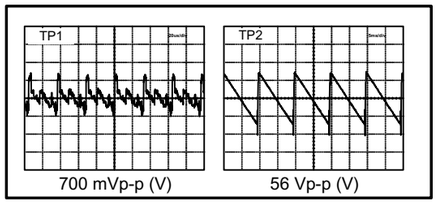
Reference Information

RESISTOR	**RN**	: METAL FILM
	RC	: SOLID
	FPRD	: NON FLAMMABLE CARBON
	FUSE	: NON FLAMMABLE FUSIBLE
	RS	: NON FLAMMABLE METAL OXIDE
	RB	: NON FLAMMABLE CEMENT
	RW	: NON FLAMMABLE WIREWOUND
	※	: ADJUSTMENT RESISTOR
COIL	**LF-8L**	: MICRO INDUCTOR
CAPACITOR	**TA**	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

Note : Les composants identifiés par une trame et par une marque ⚠ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié. specified.

~ A Board Waveforms ~



~ A Board Semiconductor Voltage Table ~

Ref	(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)
Q1100	0	0	4.5	Q2202	0	0.4	0	Q2500	0.1	0.1	0.6	Q5101	0.8	1.4	6.8	Q5208	0	0	1.5	Q6202	3.4	3.4	0
Q1300	2.7	2.1	8.4	Q2300	0	0	0.7	Q2501	0	0.6	0	Q5200	6.8	6.3	3.0	Q5209	0	0	1.5	Q6203	0	0	3.4
Q1301	2.1	2.1	0	Q2301	0	0.4	0	Q2502	0	0	5.0	Q5201	0	0.4	3.0	Q5210	0	0	1.5	Q6204	3.4	3.4	0
Q2000	0	0	4.7	Q2302	0	0.4	0	Q2503	0	0	5.0	Q5203	0	0.4	3.0	Q5211	0	0	1.5	Q6205	3.5	2.7	3.4
Q2200	0	0	-1.6	Q2400	3.9	3.4	0	Q2504	5.0	5.0	0	Q5205	0	0.4	1.5	Q5404	0	12.1	0	Q6206	1.5	2.0	2.7
Q2201	0	0.4	0	Q2401	0	0	4.7	Q5100	2.4	1.8	0	Q5207	0	0.4	3.0	Q6201	1.5	0.6	3.4	Q6207	0	0	3.4

~ A Board Location Table (A Side) ~

DIODE		D5405	D - 10	D6211	K - 4	IC2500	H - 3	IC6204	M - 4
D2200	D - 3	D6201	J - 9	D6212	J - 9	IC5102	I - 10	IC6207	J - 10
D2201	E - 3	D6203	L - 5	D6213	L - 8	IC5104	H - 10	IC6209	J - 8
D5103	H - 10	D6204	K - 2	IC		IC5400	E - 10	IC6210	K - 4
D5404	E - 11	D6210	L - 4	IC2400	J - 4	IC6202	L - 8	IC6212	L - 3

~ A Board IC Voltage Table ~

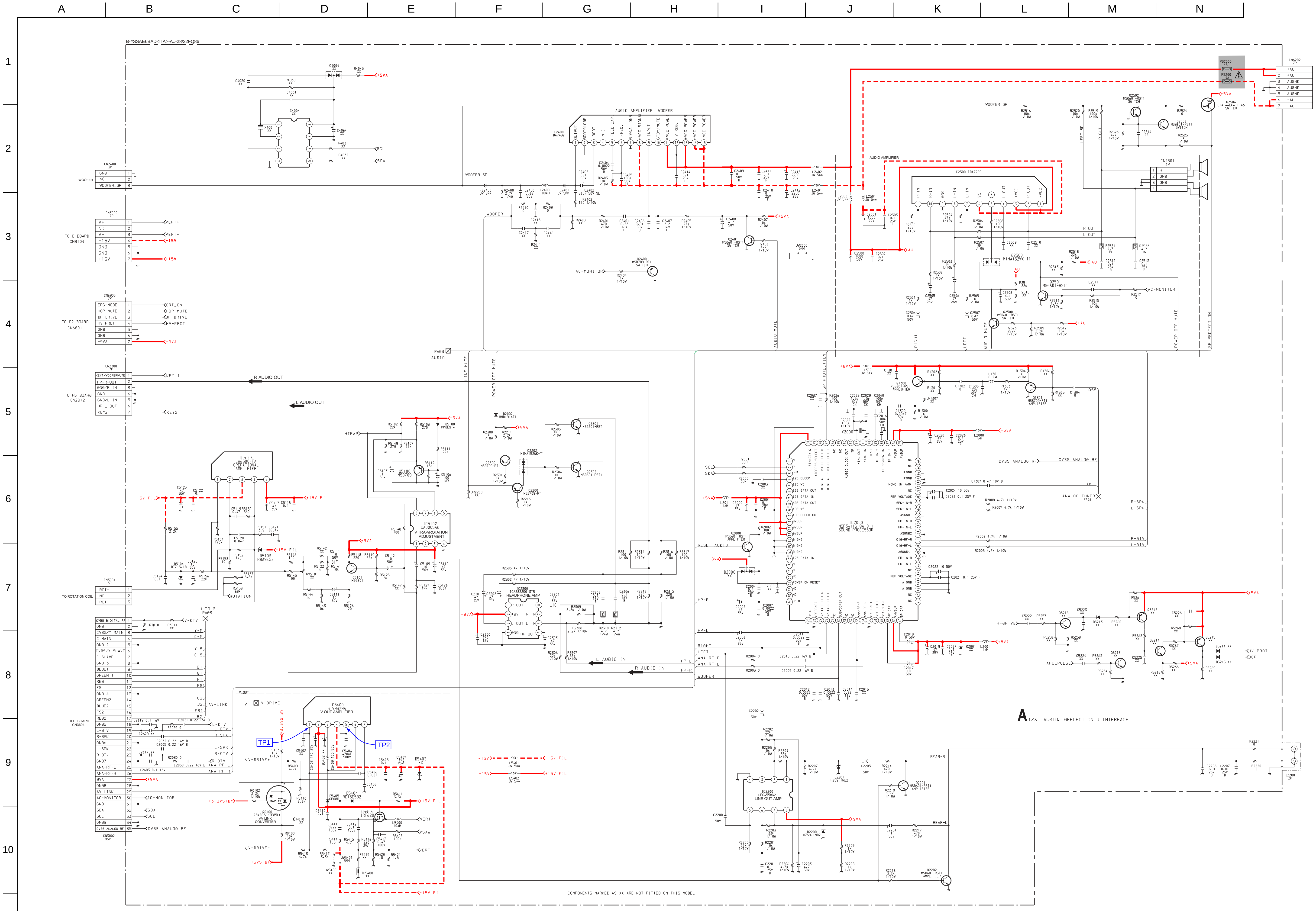
IC Voltage Table			IC Voltage Table			IC Voltage Table			IC Voltage Table			IC Voltage Table		
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC2200	1	4.5	IC2300	6	0	IC2400	12	-4.0	IC5102	2	0	IC5400	7	0.4
	2	4.5		7	0	IC2500	2	0		5	2.5	IC6202	4	1.3
	3	4.5		8	0.5		5	0.9		6	2.5		5	6.7
	5	4.5	IC2400	1	0		7	0		8	2.2	IC6207	4	1.3
	6	4.5		2	-4.0		8	0	IC5104	1	14.6		5	6.7
	7	4.5		3	10.0		9	0	IC5400	1	0.4	IC6209	4	1.3
IC2300	1	4.0		5	0		10	0		3	-12.3		5	6.7
	3	4.0		6	-13.2		11	0		5	0	IC6212	4	5.1
	5	0.5		10	3.9	IC5102	1	17.1		6	15.7		5	0

~ A Board Location Table (B Side) ~

DIODE		D5206	G - 7	D6204	E - 2	IC2200	L - 4	IC6207	F - 9	Q1300	L - 2	Q2401	F - 4	Q5202	H - 4	Q5404	K - 10
D2200	L - 3	D5207	G - 6	D6205	E - 3	IC2300	J - 3	IC6209	F - 9	Q1301	K - 2	Q2500	H - 3	Q5203	H - 4	Q6201	E - 2
D2201	J - 4	D5208	H - 6	D6206	D - 3	IC2400	G - 4	IC6210	F - 4	Q2000	J - 3	Q2501	H - 3	Q5204	G - 7	Q6202	E - 3
D2202	J - 4	D5209	G - 7	D6207	D - 3	IC2500	H - 3	IC6211	E - 5	Q2200	I - 4	Q2502	H - 4	Q5205	F - 6	Q6203	E - 3
D2500	H - 3	D5210	G - 6	D6208	D - 3	IC5102	G - 10	IC6212	E - 4	Q2201	L - 3	Q2503	H - 4	Q5206	H - 7	Q6204	E - 3
D5100	G - 10	D5211	G - 6	D6210	D - 3	IC5104	H - 10	TRANSISTOR		Q2202	L - 3	Q2504	H - 4	Q5207	H - 6	Q6205	E - 2
D5104	H - 9	D5404	K - 10	D6213	D - 8	IC5400	K - 10	Q0100	K - 6	Q2300	I - 4	Q5100	G - 10	Q5208	G - 7	Q6206	E - 2
D5200	F - 7	D5405	L - 10	D6214	E - 4	IC6200	E - 5	Q0200	K - 7	Q2301	I - 4	Q5101	F - 10	Q5209	H - 6	Q6207	E - 2
D5202	F - 6	D6201	F - 9	IC		IC6202	D - 8	Q0201	K - 7	Q2302	J - 4	Q5200	F - 6	Q5210	G - 6	Q6208	E - 3
D5205	G - 7	D6203	D - 5	IC2000	K - 4	IC6204	E - 4	Q1100	M - 2	Q2400	F - 4	Q5201	F - 6	Q5211	G - 6	Q6209	E - 4

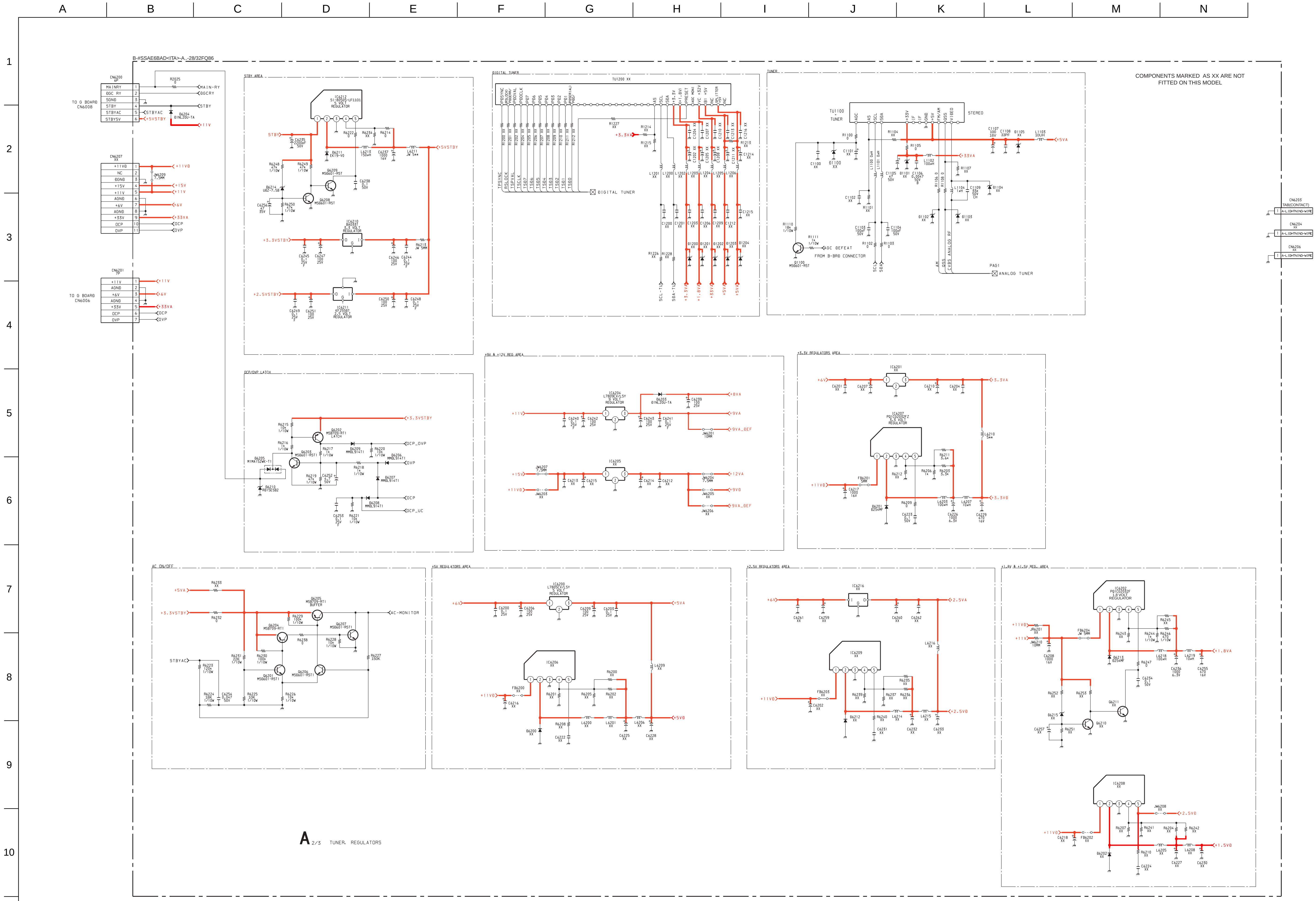
~ A Board Difference Table ~

Ref	KV-28FQ86B	KV-28FQ86E	KV-32FQ86B	KV-32FQ86E	KV-32FQ86K	KV-32FQ86U
TU1100	FRONTEND BTF-EF411	FRONTEND BTF-EC411	FRONTEND BTF-EF411	FRONTEND BTF-EC411	FRONTEND BTF-EC411	FRONTEND BTF-EU611

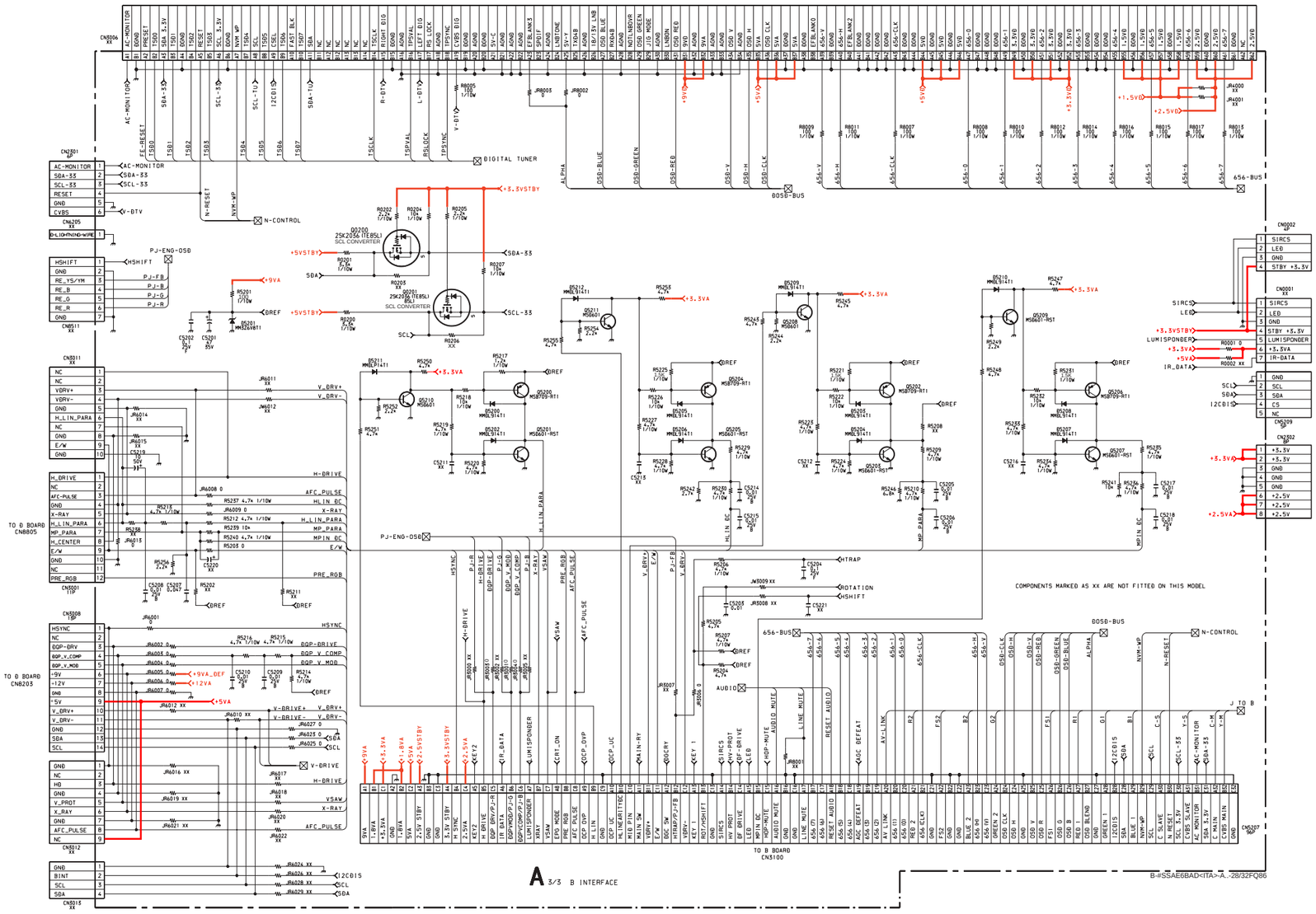


A B C D E F G H I J K L M N
1 2 3 4 5 6 7 8 9 10 11
B-#SSAE6BAD<ITA>-A..-28/32FQ86
IC4004 XX
D4004 XX
R4045 XX
+5VA
SCL
SDA
WOOFER
CN2400 3P
GND
NC
WOOFER_SP
TO D BOARD CN8104
CN3000 7P
V+
V-
-15V
+15V
VERT+
VERT-
TO D2 BOARD CN6801
CN6900 7P
EPG-MODE
HOP-MUTE
DF DRIVE
HV-PROT
+9VA
CRT_ON
TO H5 BOARD CN2912
CN2300 7P
KEY1/WOOFERMUTE
HP-R-OUT
GND/R IN
GND/L IN
HP-L-OUT
KEY2
R AUDIO OUT
L AUDIO OUT
IC5104 LA6500-FA OPERATIONAL AMPLIFIER
-15V FIL
+15V FIL
TO ROTATION COIL
CN3004 3P
ROT-
ROT+
ROTATION
IC5102 CA0005AD V TRAP/ROTATION ADJUSTMENT
HTRAP
Q5100 MSB709
Q5101 MSD601
J TO B PAG3
TO J BOARD CN3604
CN3002 35P
CVBS DIGITAL RF
CVBS/Y MAIN
C MAIN
CVBS/Y SLAVE
C SLAVE
BLUE1
GREEN 1
RED1
FS 1
GREEN2
BLUE2
FS2
RED2
L-DTV
R-SPK
L-SPK
R-DTV
ANA-RF-L
ANA-RF-R
9VA
AV LINK
AC-MONITOR
CVBS ANALOG RF
V-DTV
AV-LINK
IC5400 STV9379A V OUT AMPLIFIER
TP1
TP2
V-DRIVE
V-DRIVE+
V-DRIVE-
+3.3VSTBY
+5VSTBY
Q0100 2SK2036 (TE85L) AV LINK CONVERTER
Q5404 IRF620
VSAW
V OUT
IC2400 TDA7482 AUDIO AMPLIFIER WOOFER
OUTPUT BOOTDIODE BOOT N.C. FEED CAP. FREQ. SIGNAL GND -VCC SIGNAL INPUT STBY/MUTE +VCC POWER V REG. +VCC POWER -VCC POWER -VCC POWER
WOOFER SP
Q2400 MSB709-RT1 SWITCH
Q2401 MSD601-RST1 SWITCH
JW2000 5MM
PAG3 AUDIO
LINE MUTE
POWER OFF MUTE
AUDIO MUTE
SP PROTECTION
AUDIO AMPLIFIER
IC2500 TDA7269
R+IN R-IN GND L-IN L+IN VS M L OUT +VCC R OUT -VCC
+AU
R OUT
L OUT
D2500 M1MA152WK-T1
Q2500 MSD601-RST1 SWITCH
Q2501 MSD601-RST1
Q2502 MSD601-RST1 SWITCH
Q2503 MSD601-RST1 SWITCH
Q2504 DTA144EKA-T146 SWITCH
CN2501 4P
LEFT SP
RIGHT
PS2000 4A
PS2001 4A
CN6202 7P
+AU
AUGND
-AU
TO G BOARD CN6012
+8VA
Q1300 MSD601-RST1 AMPLIFIER
Q1301 MSB709-RT1 AMPLIFIER
QSS
IC2300 TDA2822D013TR HEADPHONE AMP
L AUDIO IN
R AUDIO IN
Q2300 MSB709-RT1
Q2301 MSD601-RST1
Q2302 MSD601-RST1
Q2200 MSB709-RT1
D2202 M1MA152WK-T1
IC2000 MSP3411G-QA-B11 SOUND PROCESSOR
Q2000 MSD601-RST1 AMPLIFIER
RESET AUDIO
X2000
ANALOG TUNER PAG2
AM
HP-R
HP-L
RIGHT
LEFT
ANA-RF-R
ANA-RF-L
WOOFER
IC2200 UPC4558G2 LINE OUT AMP
Q2201 MSD601-RST1 AMPLIFIER
Q2202 MSD601-RST1 AMPLIFIER
REAR-R
REAR-L
J2200 2P
H-DRIVE
AFC_PULSE
HV-PROT
OCP
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL
A 1/3 AUDIO, DEFLECTION J INTERFACE

~ A Board Schematic Diagram [Audio, Deflection J Interface] Page 1/3 ~

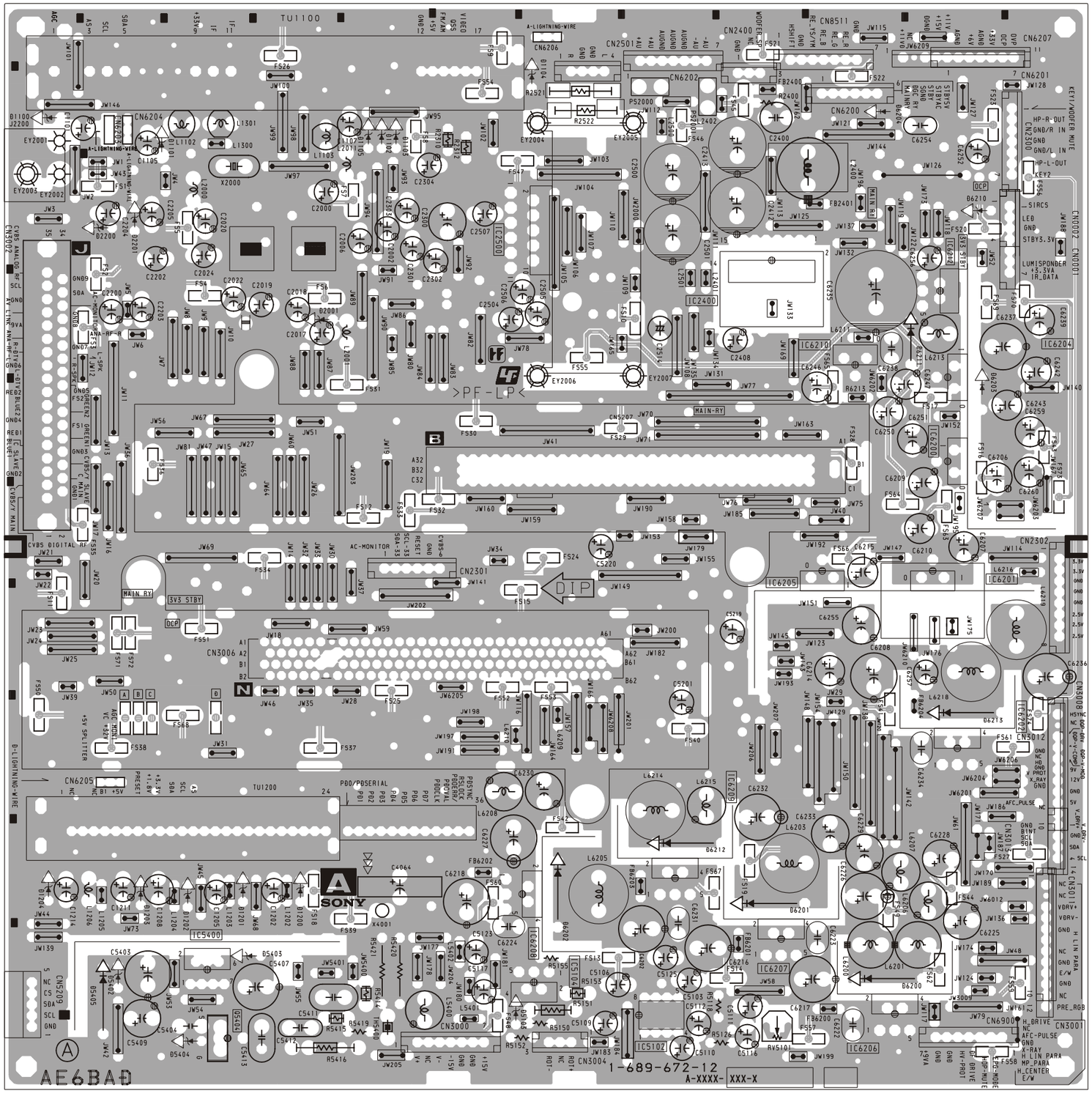

B-#SSAE6BAD<ITA>-A..-28/32FQ86
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL
TO G BOARD CN6008
CN6200 6P
MAINRY
DGC RY
SGND
STBY
STBYAC
STBY5V
CN6207 XX
CN6201 7P
TO G BOARD CN6006
STBY AREA
IC6212 SI-80505-LF1101 5 VOLT REGULATOR
IC6210 BA033T 3.3 VOLT REGULATOR
IC6211 KF25SDT 2.5 VOLT REGULATOR
+5VSTBY
+3.3VSTBY
+2.5VSTBY
OCP/OVP LATCH
Q6202 MSB709-RT1 LATCH
Q6203 MSD601-RST1
OCP_OVP
OVP
OCP
OCP_UC
DIGITAL TUNER
TU1200 XX
TUNER
TU1100 * TUNER
STEREO
AGC DEFEAT
FROM B-BRD CONNECTOR
ANALOG TUNER
+9V & +12V REG AREA
IC6204 L7809CV/LSY 9 VOLT REGULATOR
IC6205 XX
+3.3V REGULATORS AREA
IC6201 XX
IC6207 PQ1CG2032FZ 3.3 VOLT REGULATOR
AC ON/OFF
Q6205 MSB709-RT1 BUFFER
AC-MONITOR
STBYAC
+5V REGULATORS AREA
IC6200 L7805CV/LSY 5 VOLT REGULATOR
IC6206 XX
+2.5V REGULATORS AREA
IC6216 XX
IC6209 XX
+1.8V & +1.5V REG. AREA
IC6202 PQ1CG2032F 1.8 VOLT REGULATOR
IC6208 XX
CN6203 TAB(CONTACT)
CN6204 XX
CN6206 XX
A-LIGHTNING-WIRE
A 2/3 TUNER, REGULATORS

~ A Board Schematic Diagram [Tuner, Regulators] Page 2/3 ~

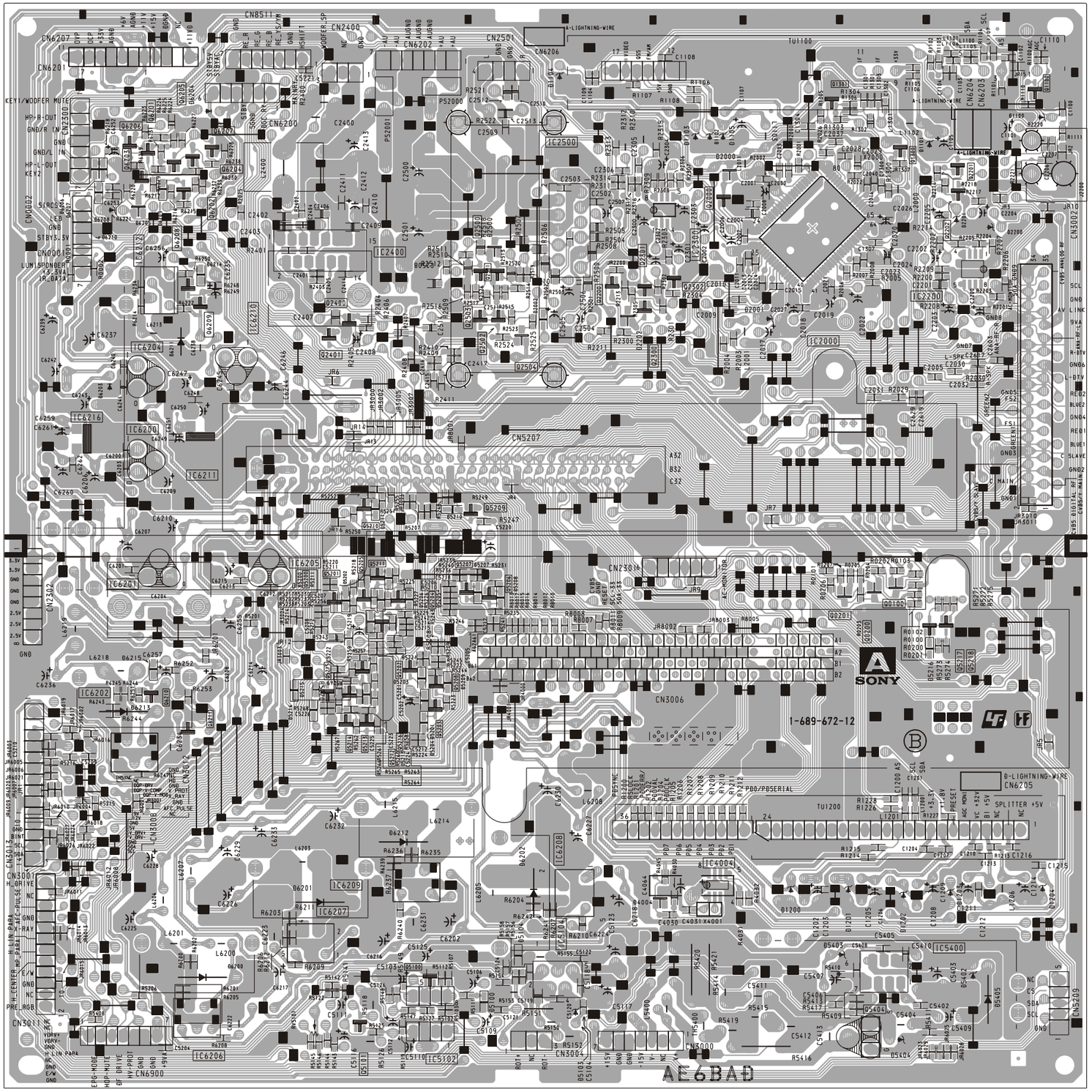


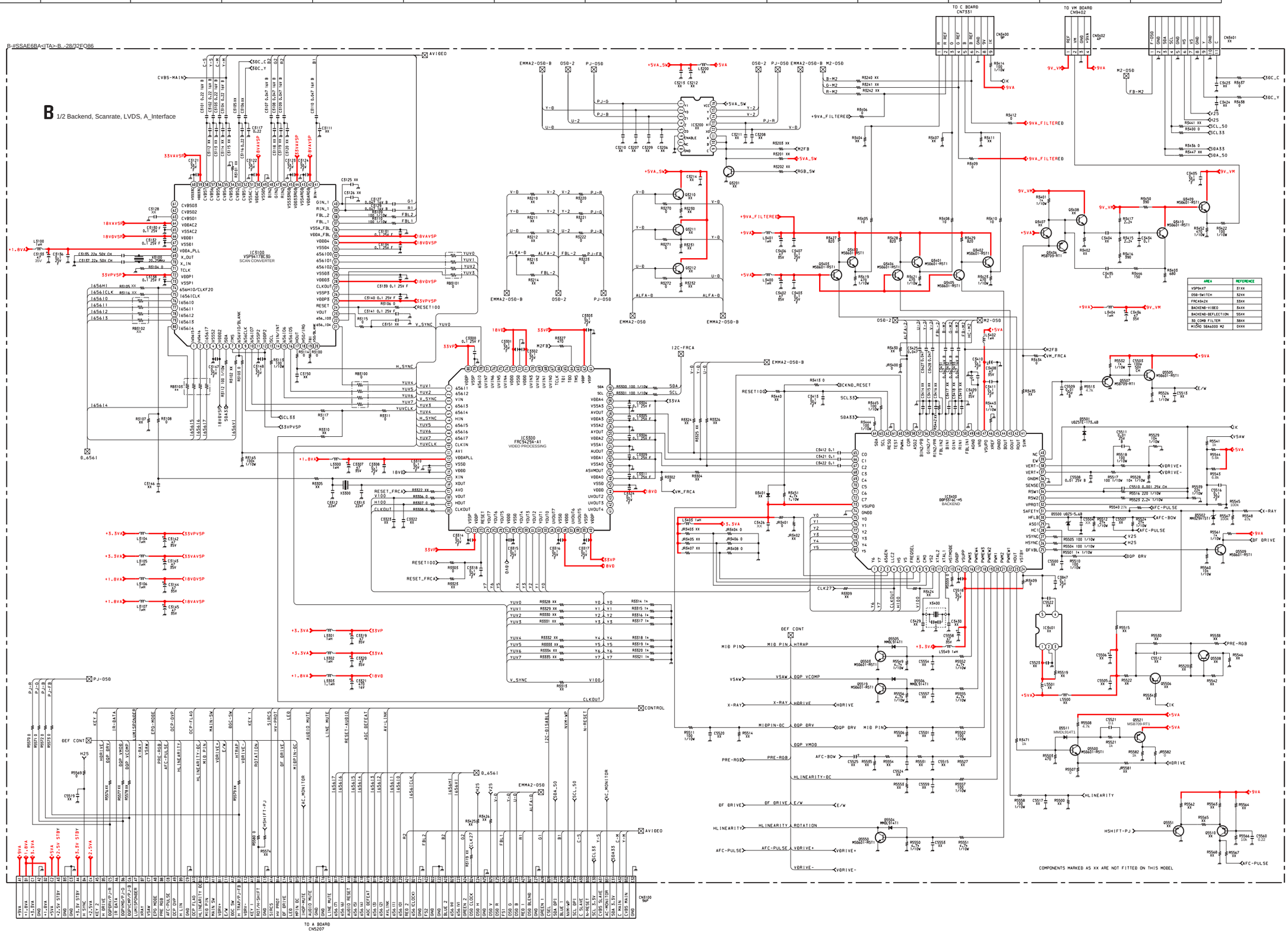
~ A Board Schematic Diagram [B Interface] Page 3/3 ~

~ A Printed Wiring Board Conductor side A ~



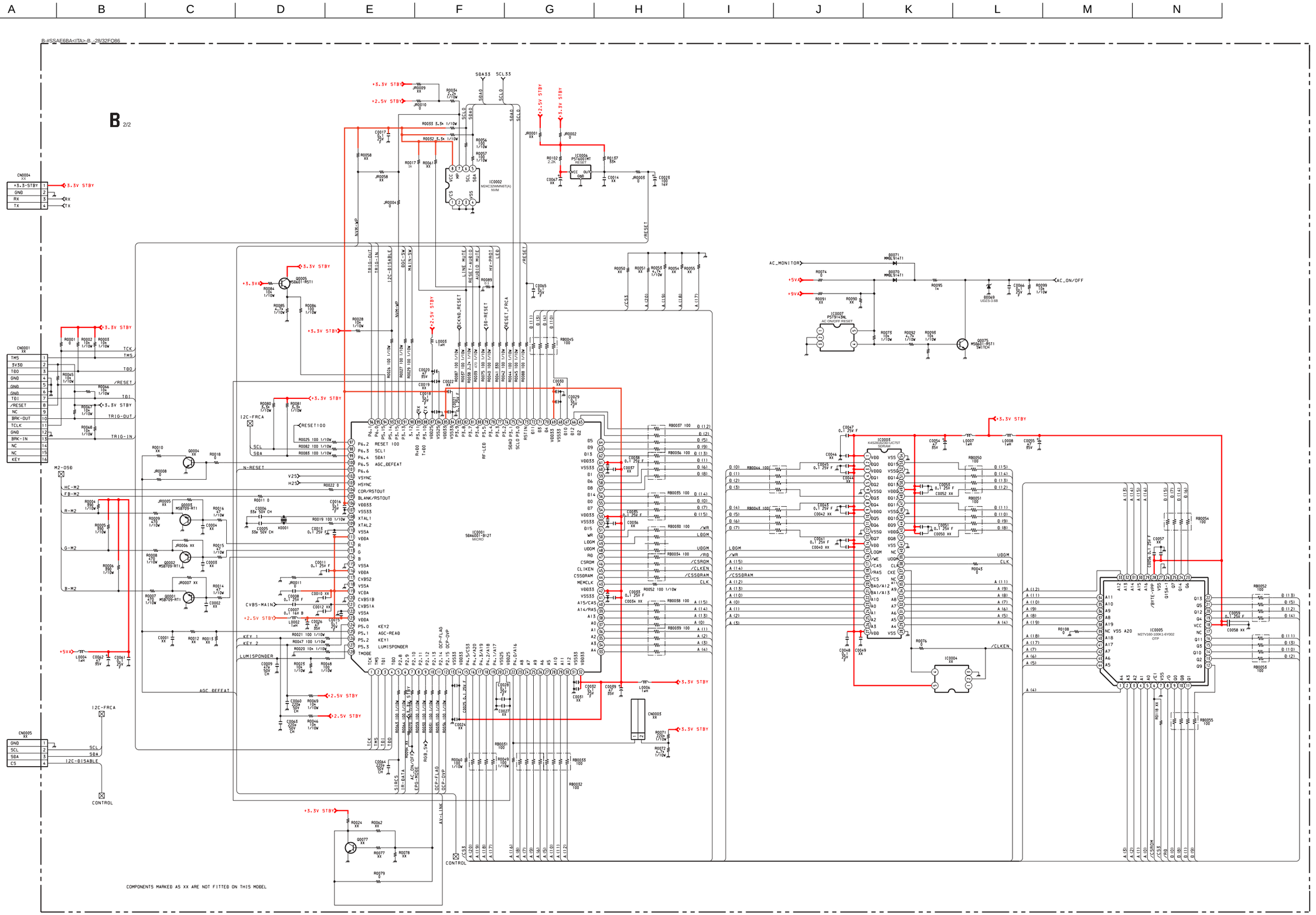
~ A Printed Wiring Board Conductor side B ~





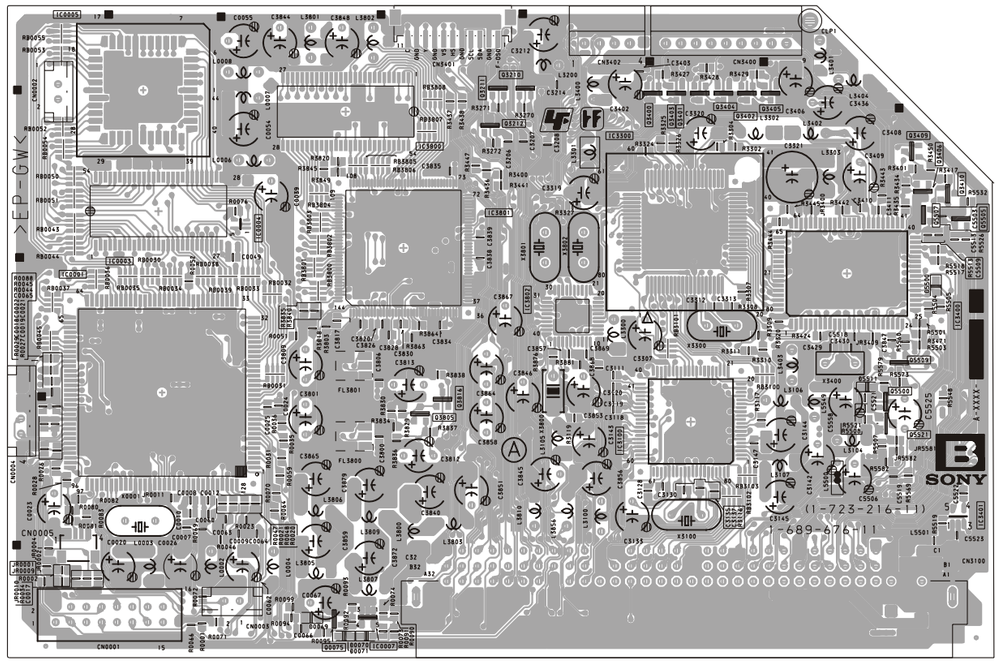
AREA	REFERENCE
VSP94X7	51XX
OSD-SWITCH	52XX
FRC942X	53XX
BACKEND-VIDEO	54XX
BACKEND-DEFLECTION	55XX
SD COMB FILTER	58XX
MICRO SBA6000 M2	0XXX

~ B Board Schematic Diagram [Backend,Scanrate,LVDS,A_Interface] Page 1/2 ~

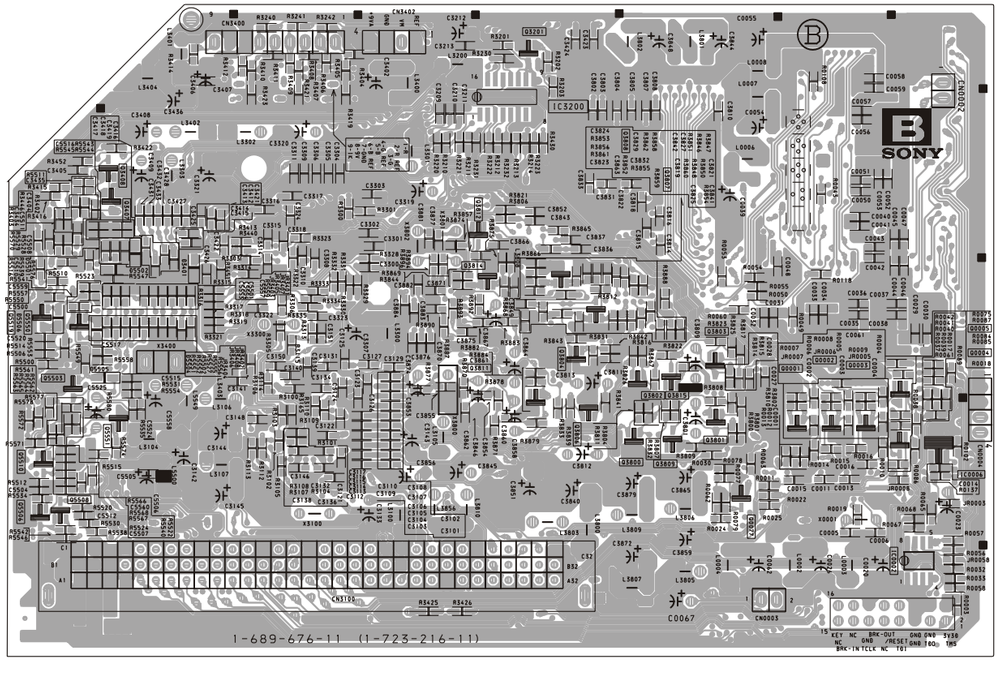


~ B Board Schematic Diagram [Backend,Scanrate,LVDS,A_Interface] Page 2/2 ~

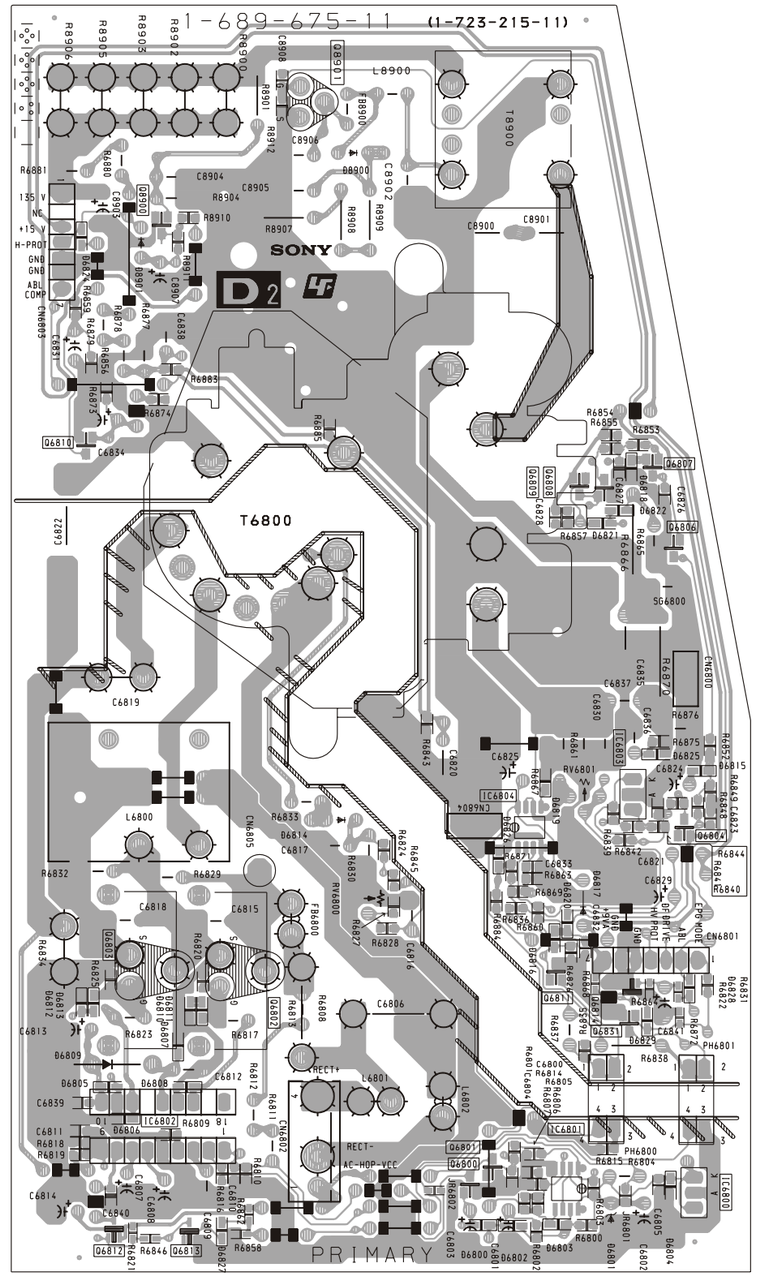
~ B Printed Wiring Board Conductor side A ~

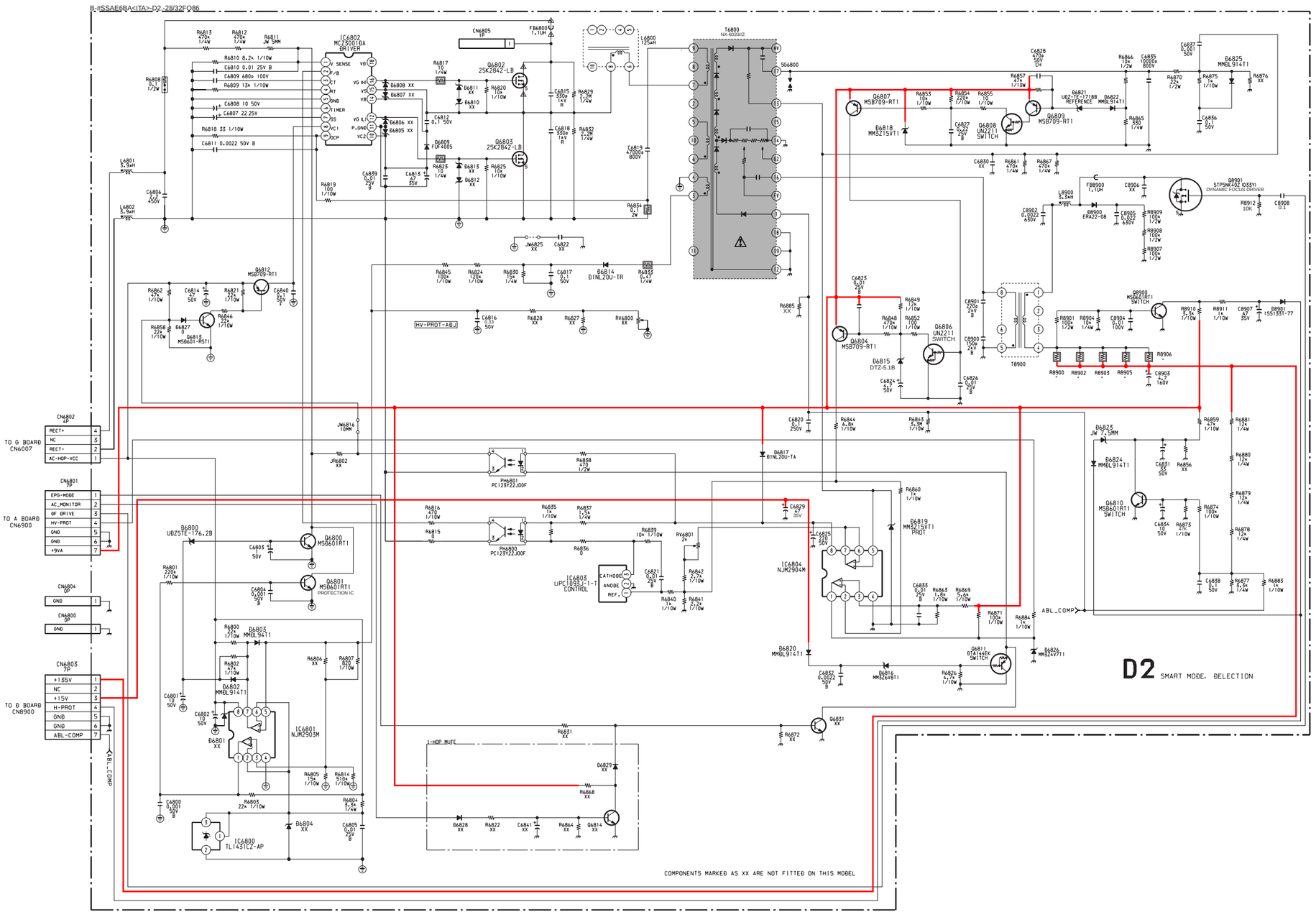


~ B Printed Wiring Board Conductor side B ~



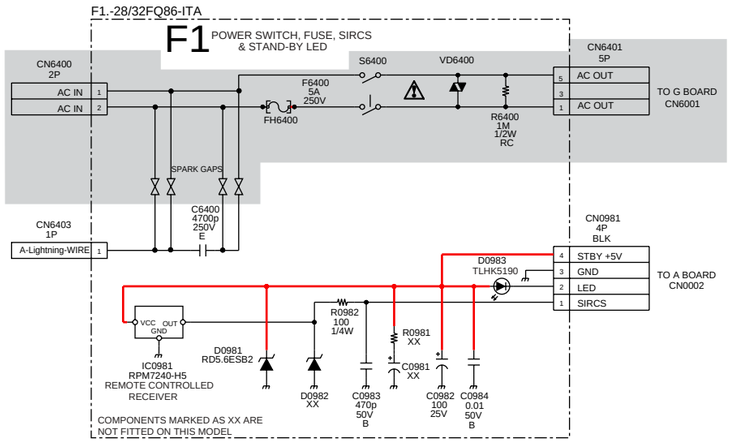
~ D2 Printed Wiring Board Conductor side ~



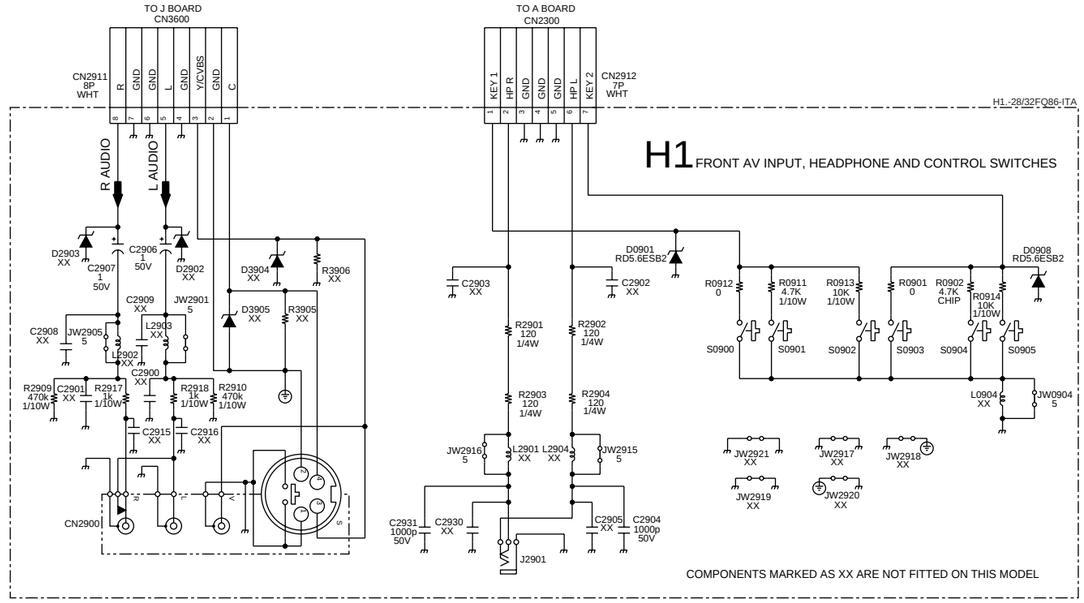


~ D2 Board Schematic Diagram [Smart Mode Deflection] ~

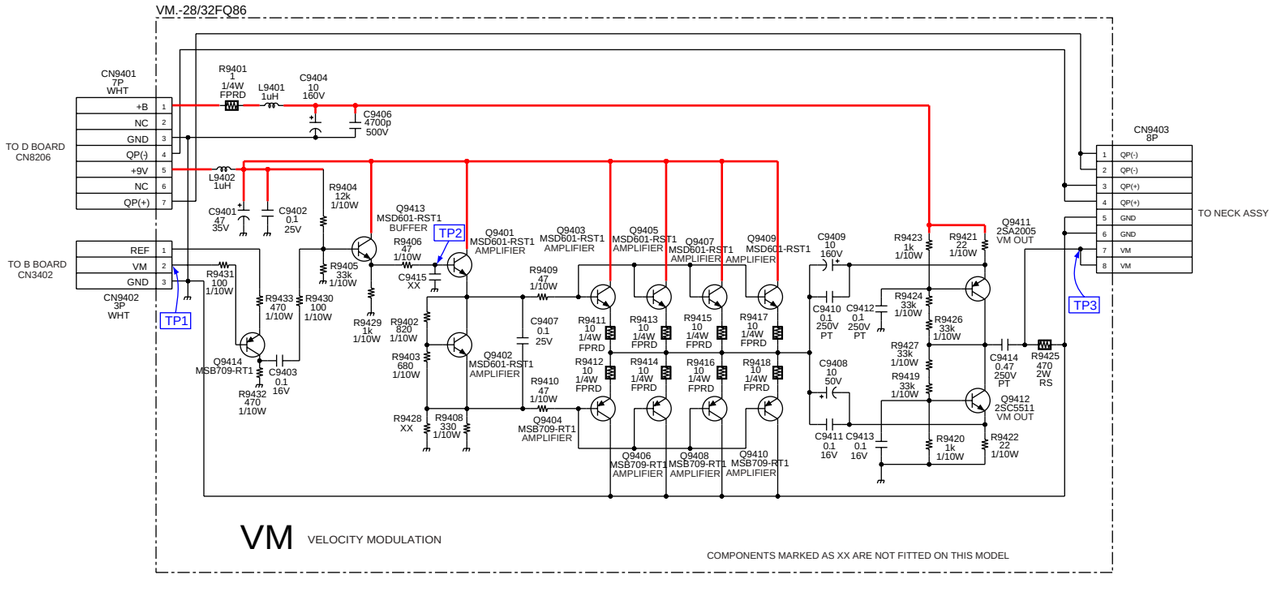
~ F1 Board Schematic Diagram [Power Switch, Fuse, SIRCS and Stand-By LED] ~



~ H1 Board Schematic Diagram [Front AV Input, Headphone and Control Switches] ~



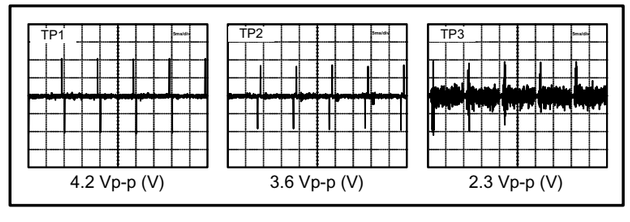
~ VM Board Schematic Diagram [Velocity Modulation] ~

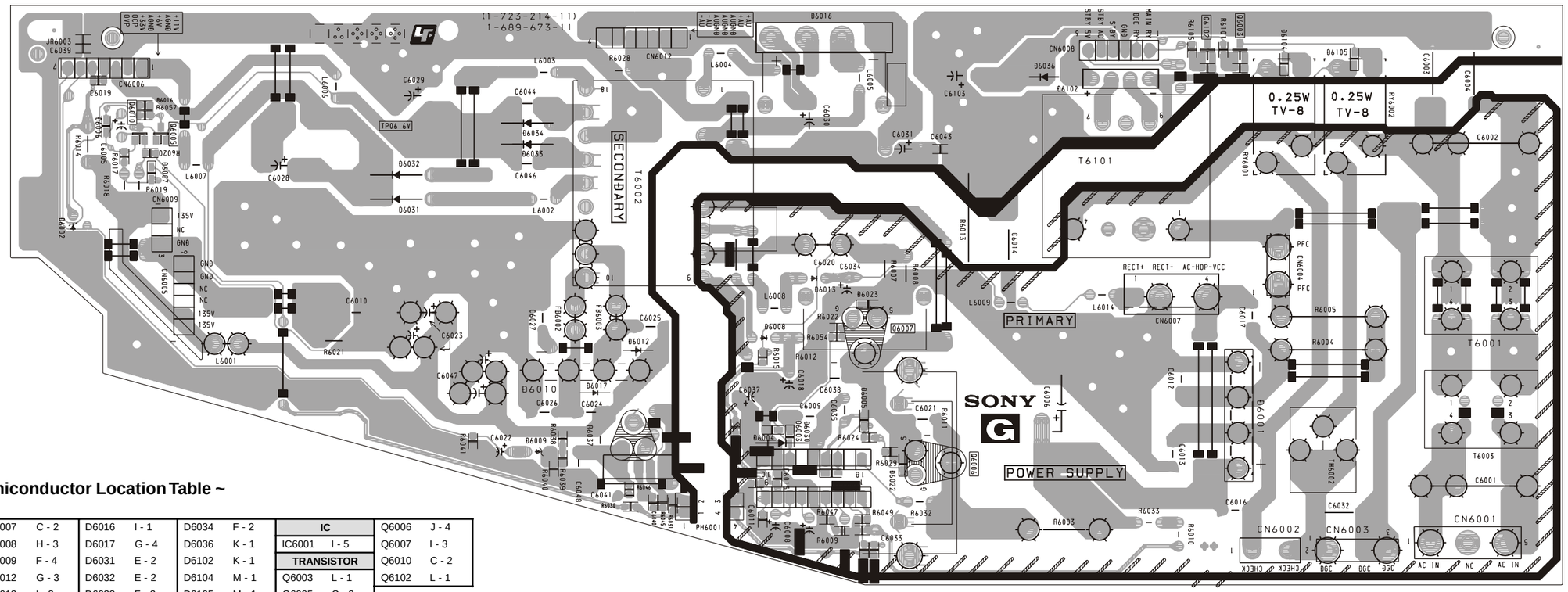


~ VM Board Voltage Table ~

Ref	(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)
Q9401	5.1	5.7	8.9	Q9408	4.3	3.6	0
Q9402	3.4	4.3	5.1	Q9409	4.4	5.1	8.9
Q9403	4.4	5.1	8.9	Q9410	4.3	3.6	0
Q9404	4.3	3.6	0	Q9411	4.3	3.6	0
Q9405	4.4	5.1	8.9	Q9412	135.1	1.4.6	70.5
Q9406	4.3	3.6	0	Q9413	0.3	0.9	70.5
Q9407	4.4	5.1	8.9	Q9413	6.6	5.9	2.4

~ VM Board Waveforms ~

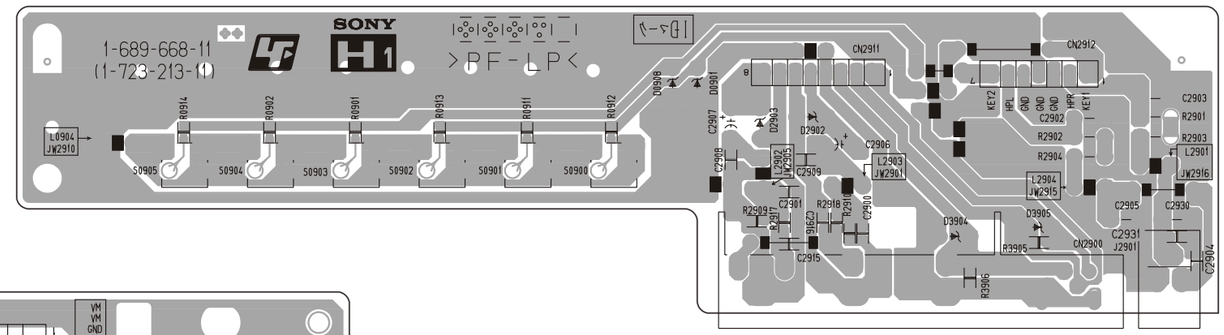




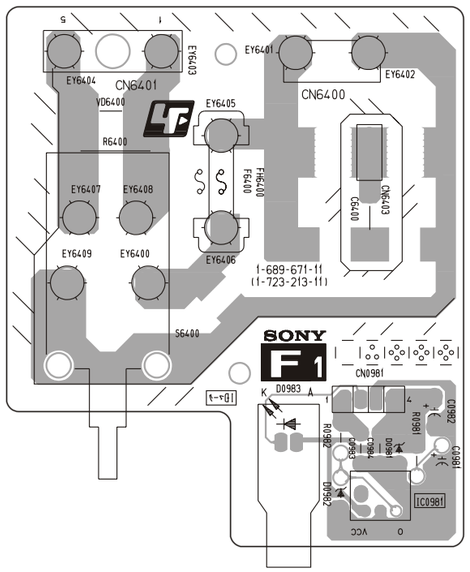
~ G Printed Wiring Board Conductor side ~

~ G Board Semiconductor Location Table ~

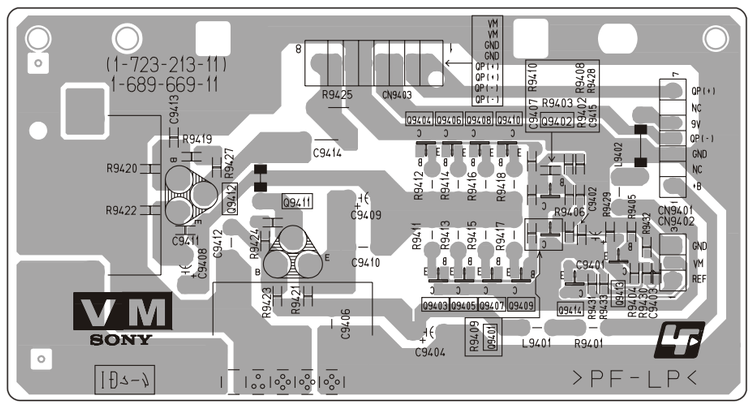
DIODE		D6007	C - 2	D6016	I - 1	D6034	F - 2	IC		Q6006	J - 4
D6001	L - 4	D6008	H - 3	D6017	G - 4	D6036	K - 1	IC6001	I - 5	Q6007	I - 3
D6002	B - 3	D6009	F - 4	D6031	E - 2	D6102	K - 1	TRANSISTOR		Q6010	C - 2
D6004	H - 4	D6012	G - 3	D6032	E - 2	D6104	M - 1	Q6003	L - 1	Q6102	L - 1
D6006	C - 2	D6013	I - 3	D6033	F - 2	D6105	M - 1	Q6005	C - 2		



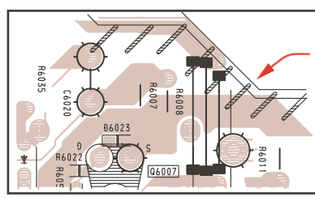
~ H1 Printed Wiring Board Conductor side ~



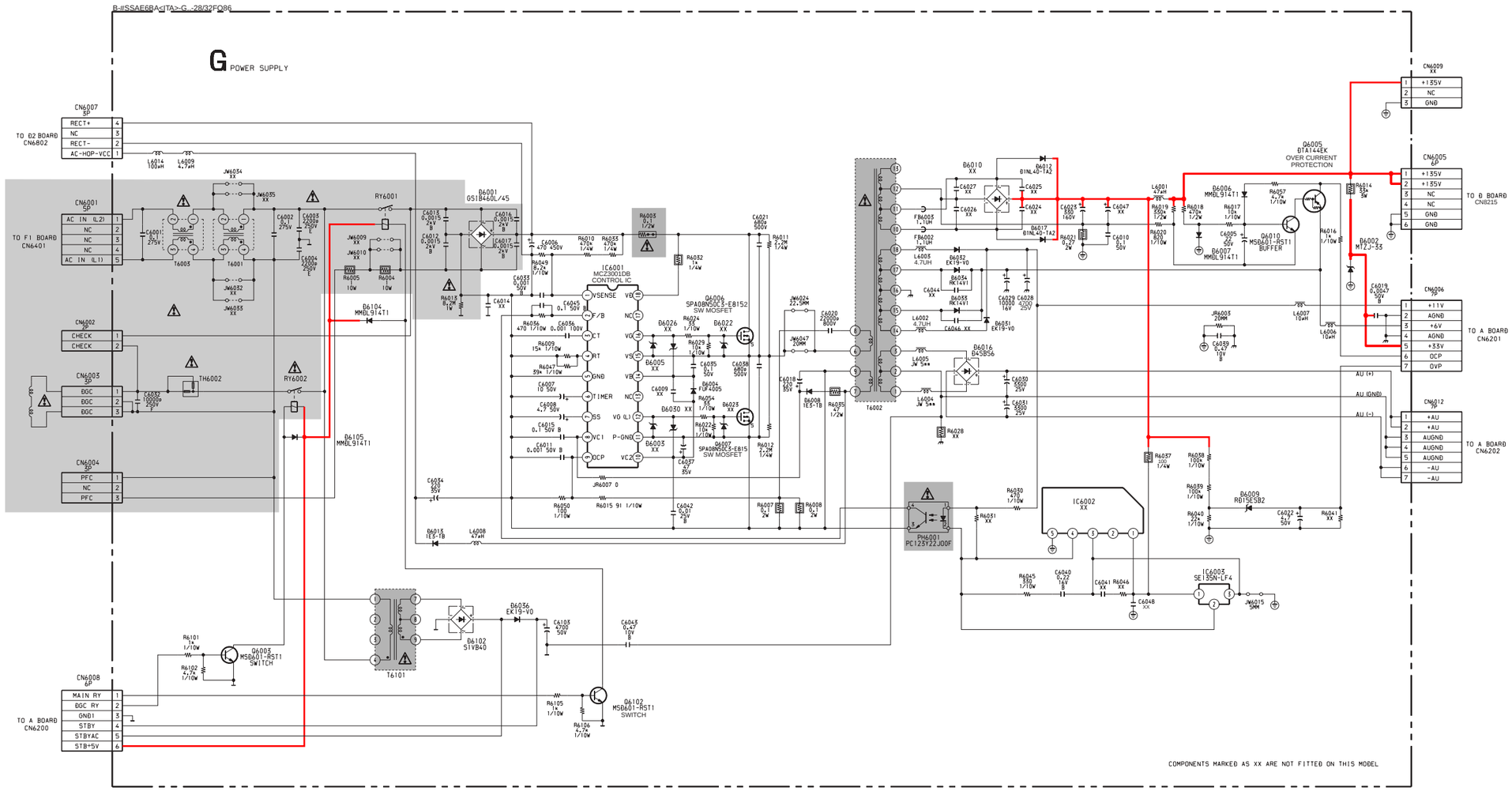
~ F1 Printed Wiring Board Conductor side ~



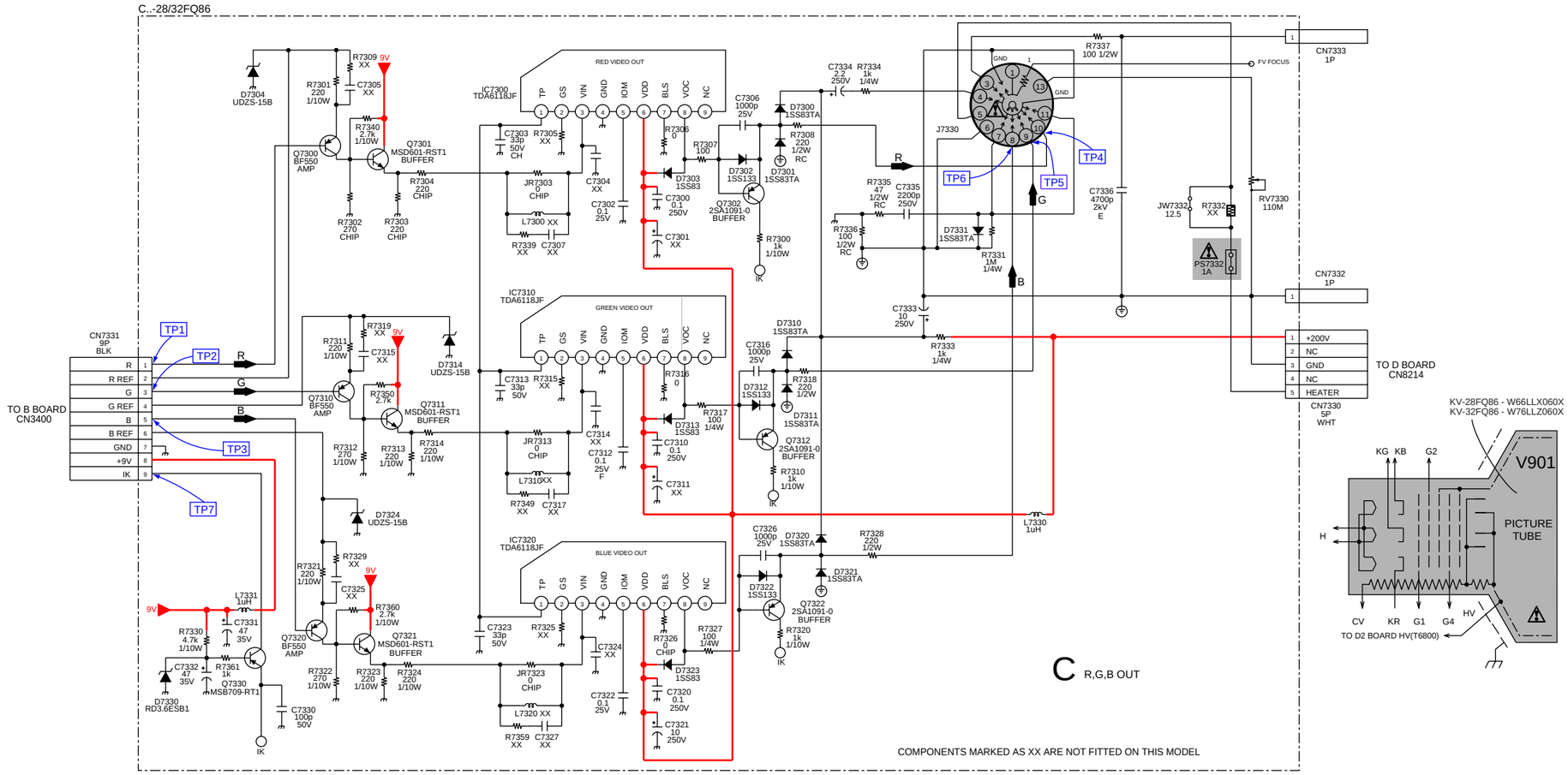
~ VM Printed Wiring Board Conductor side ~



Note :
Portions of the circuit contained within the marked areas as shown have high voltages present. Use care to prevent electric shock during inspection or repair. An Isolation Transformer must be used during any Service work to avoid possible shock hazard due to live chassis. The chassis of this receiver is directly connected to the power line.

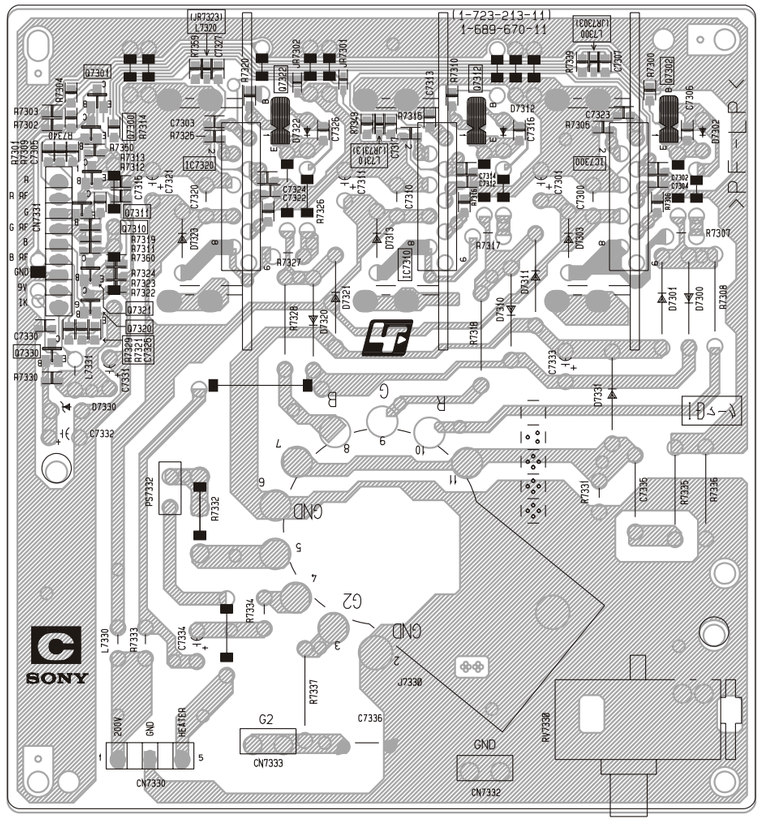


~ G Board Schematic Diagram [Power Supply] ~

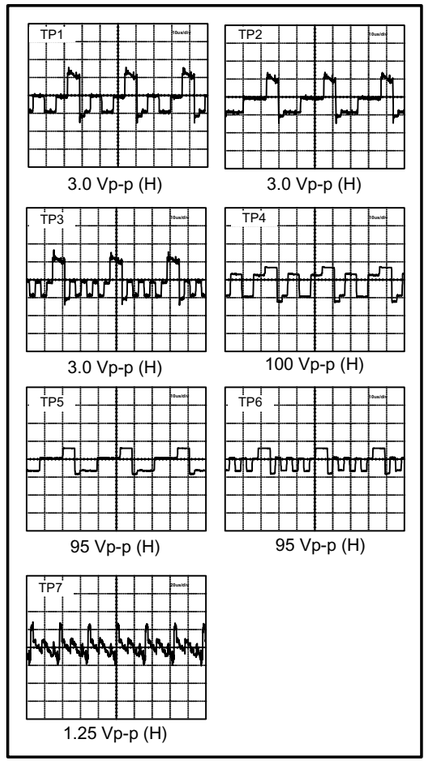


~ C Board Schematic Diagram [R-G-B Out] ~

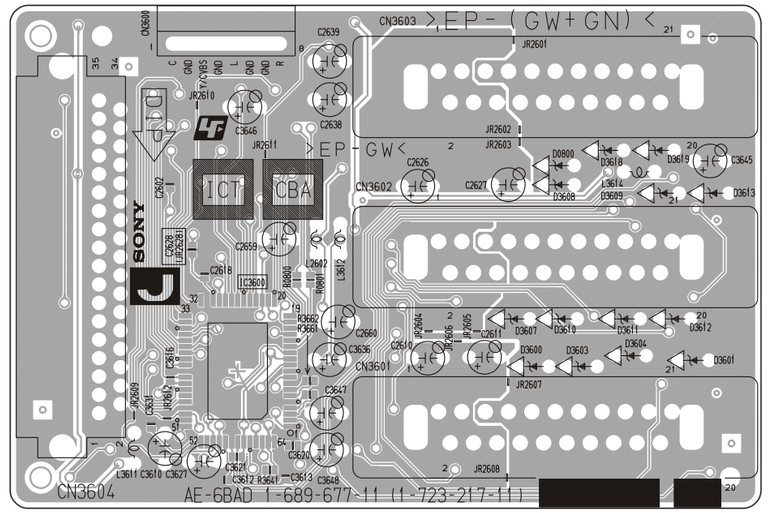
~ C Printed Wiring Board Conductor side ~



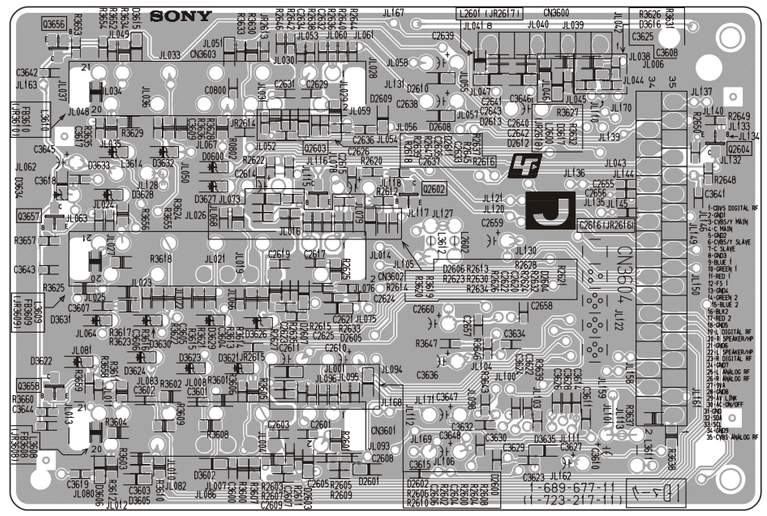
~ C Board Waveforms ~



~ J Printed Wiring Board Conductor side A ~



~ J Printed Wiring Board Conductor side B ~

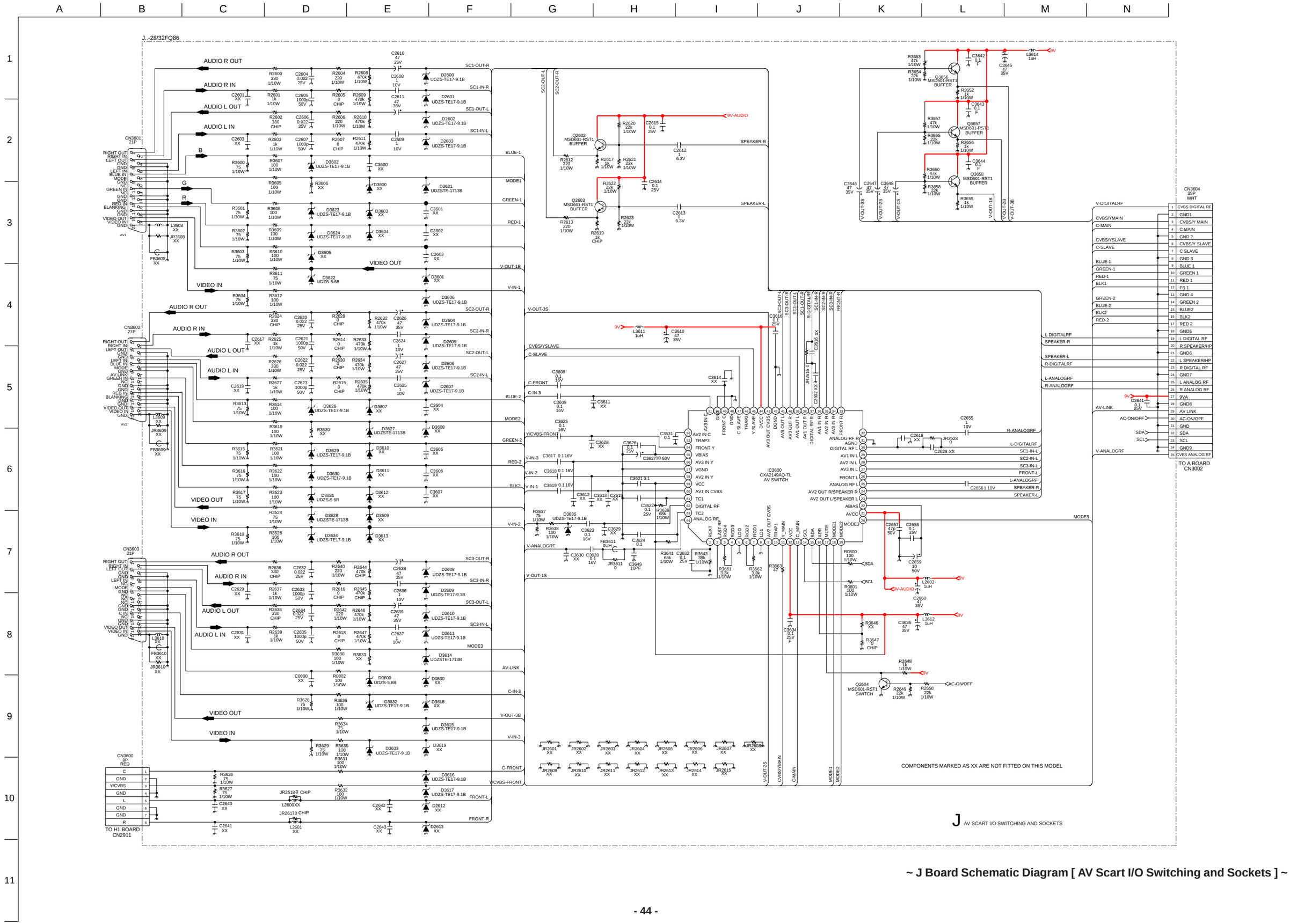


~ C Board Semiconductor Voltage Table ~

Ref	(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)
Q7300	7.5	6.9	2.4	Q7312	149.5	149.56	3.8
Q7301	1.8	2.4	8.9	Q7320	7.6	6.9	2.3
Q7302	145.9	147.8	4.0	Q7321	1.7	2.3	8.9
Q7310	7.6	7.0	2.2	Q7322	148.4	150.6	3.8
Q7311	1.6	2.2	8.9	Q7330	3.6	3.2	0

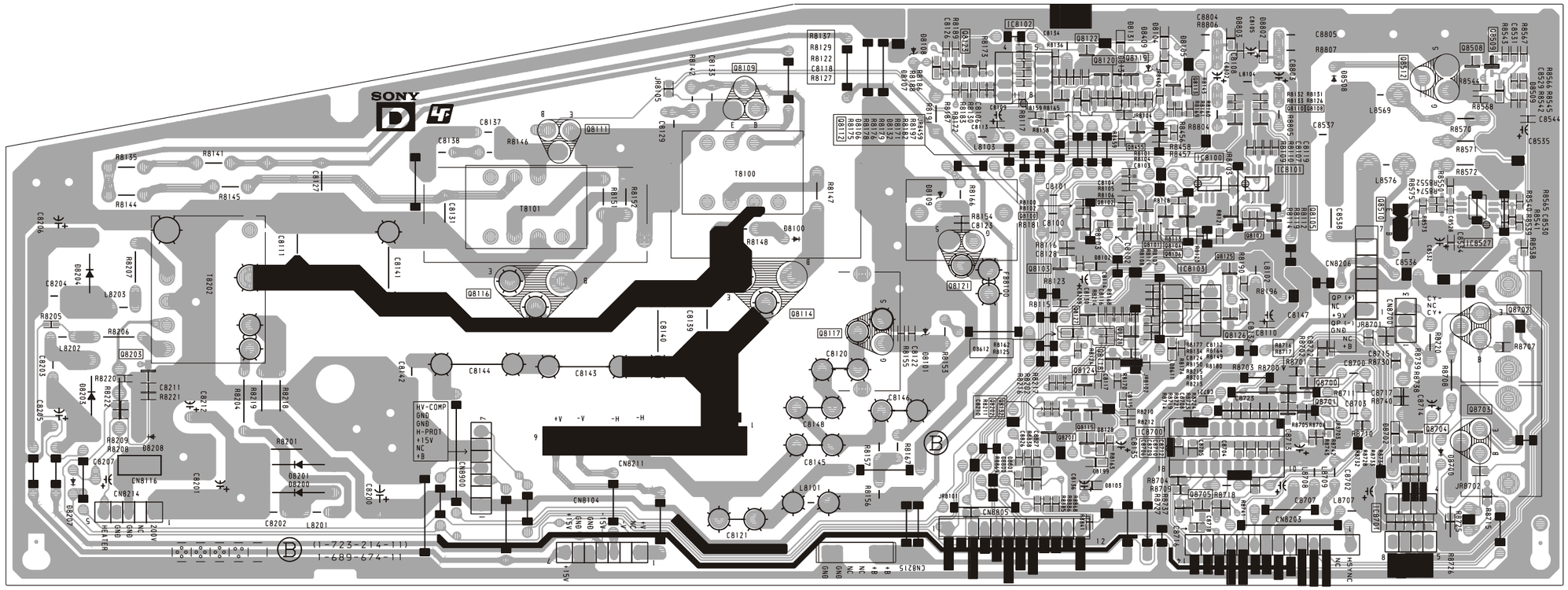
~ C Board IC Voltage Table ~

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC7300	1	5.3
	2	21.9
	3	1.9
	5	5.9
	6	205.4
	8	147.6
IC7310	1	5.1
	2	0
	3	1.7
	5	5.6
	6	205.4
	8	149.5
IC7320	1	5.1
	2	0
	3	1.8
	5	4.8
	6	205.4
	8	150.4



~ J Board Schematic Diagram [AV Scart I/O Switching and Sockets] ~

~ D Printed Wiring Board Conductor side ~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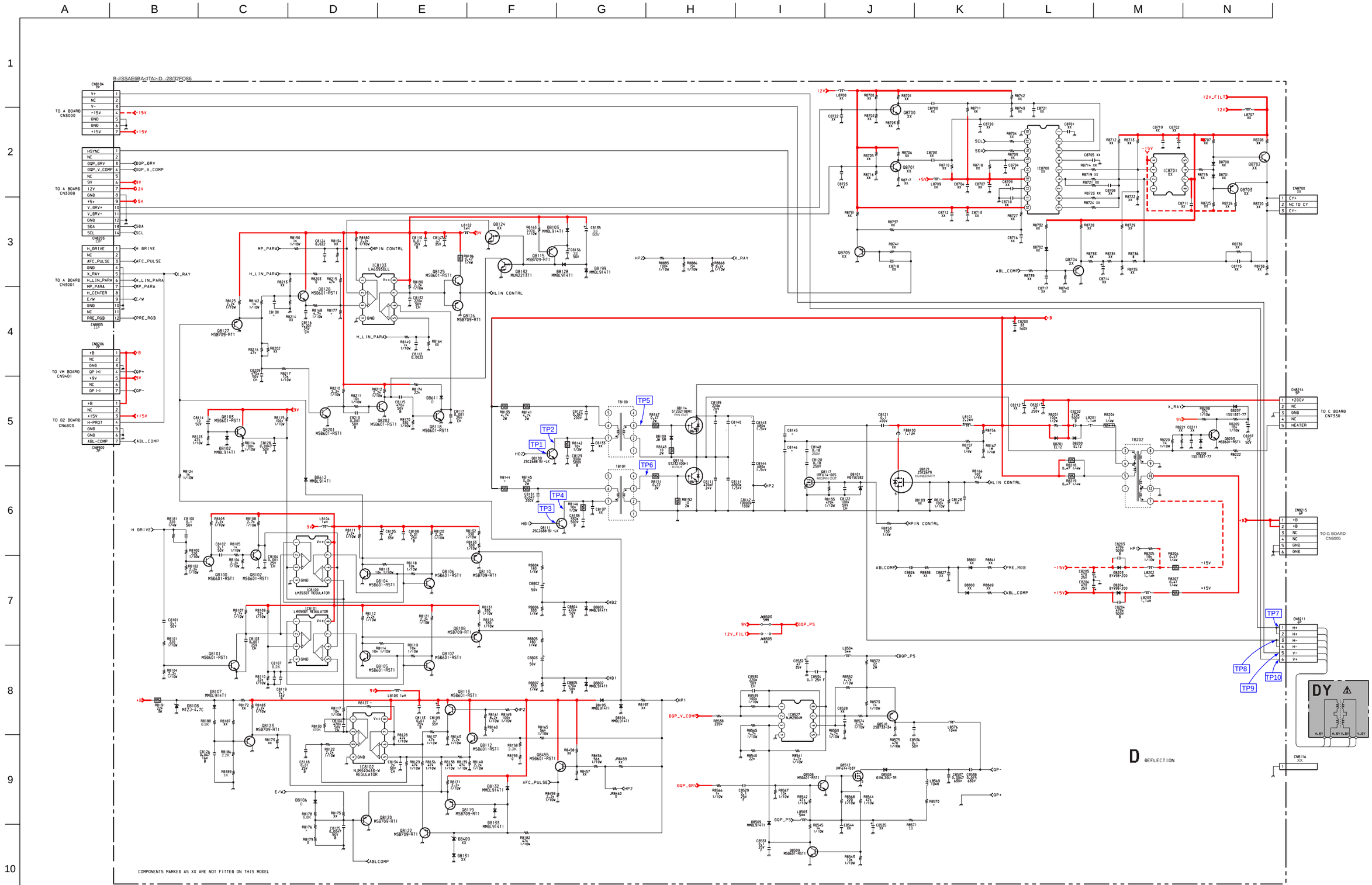

~ D Board Schematic Diagram [Deflection] ~

5-4. SEMICONDUCTORS

1E3
1SS133T-77
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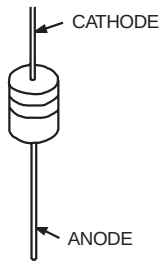
D1NL20U
D1NL20U-TR
D1NL40-TA2
EL1Z
ERA22-08
GP08D
FUF4005
HZS9.1NB2
MTZJ-33B
MTZJ-4.7C
RD15ES-B2
RD39ES-B2
RD3.6ES-B2
RD5.6ESB2
RK14V1



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MM3Z6V8T1
MM3Z9V1ST1
MM3Z15VT1
MMDL914T1
UDZSTE-1713B
UDZSTE-1718B
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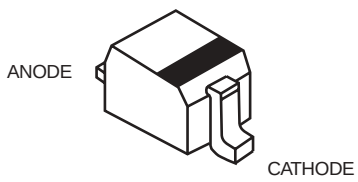
UDZSTE-175.6B
UDZSTE-176.2B
UDZSTE-179.1B
UDZSTE-17-7.5B



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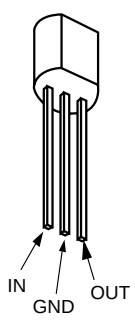

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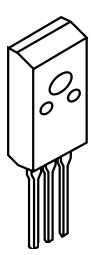

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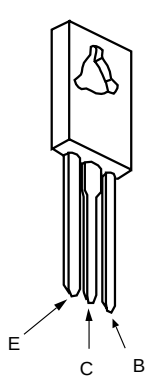

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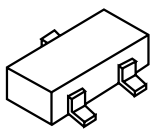
DTA144EKA-T146
DTC144EKA
MSB709-RT1
MSD601-RST1
M1MA152WA-T1
UN2111



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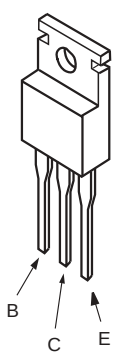
IRF614-037
IRF620
2SA2005
2SC5511



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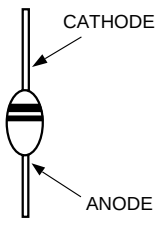

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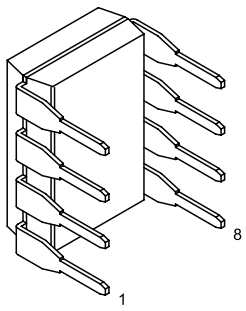

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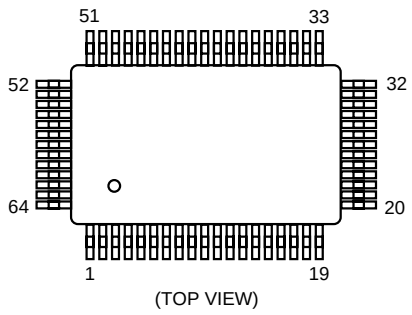
CXA2149AQ-TL



(TOP VIEW)

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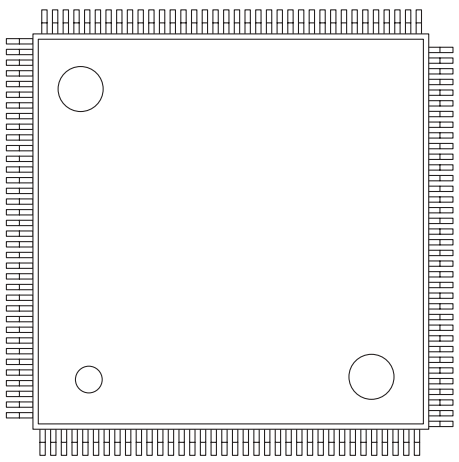

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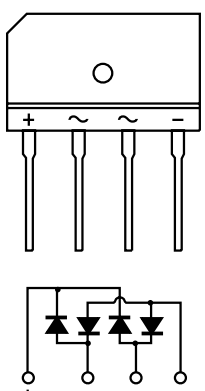
S1VB40



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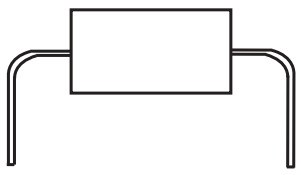

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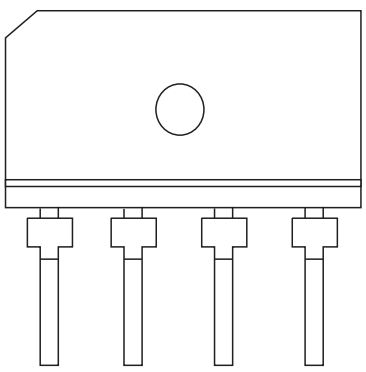

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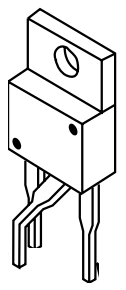
ST2310DHI



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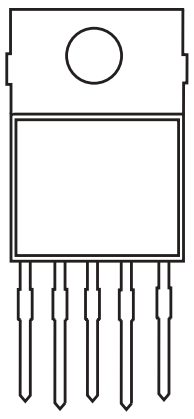

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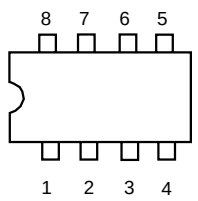

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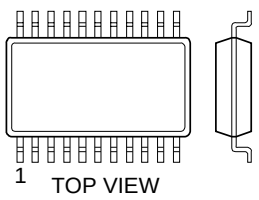

TOP VIEW
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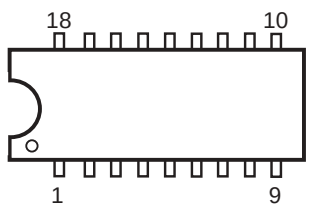

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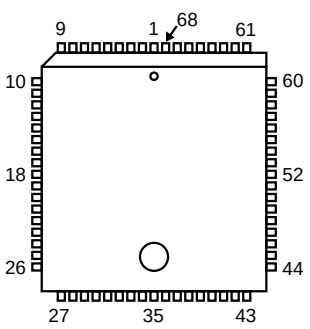
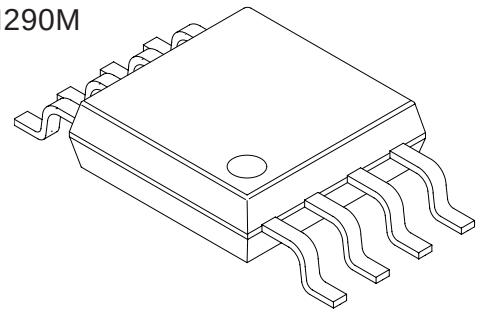
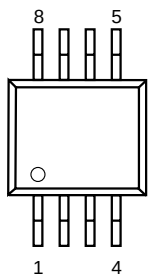


(TOP VIEW)

NJM290M

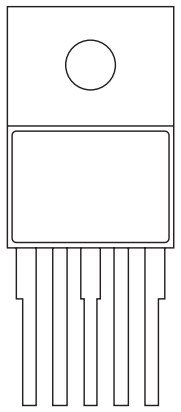


NJM3404AD-W
UPC4558G2

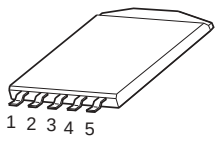


(TOP VIEW)

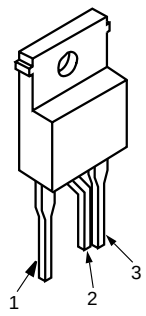
PQ1CG2032FZ



PST9143NL

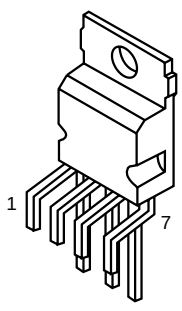


SE135N-LF4

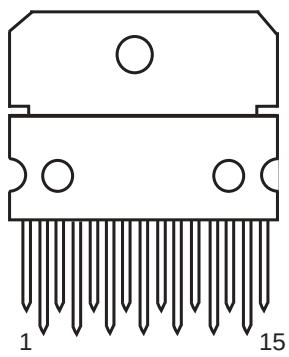


1 V OUT SENSE
2 COLLECTOR
3 GND

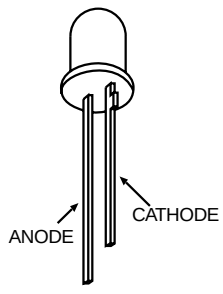
STV9379



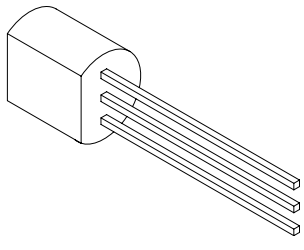
TDA7482
TDA7269



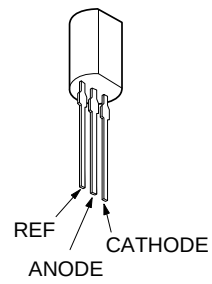
TLHK5190



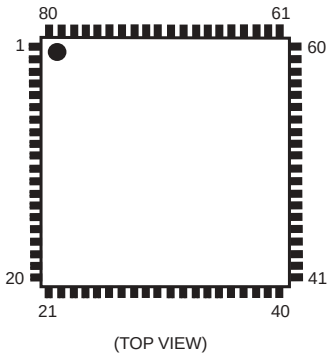
TL1431CZ-AP



UPC1093J-1-T



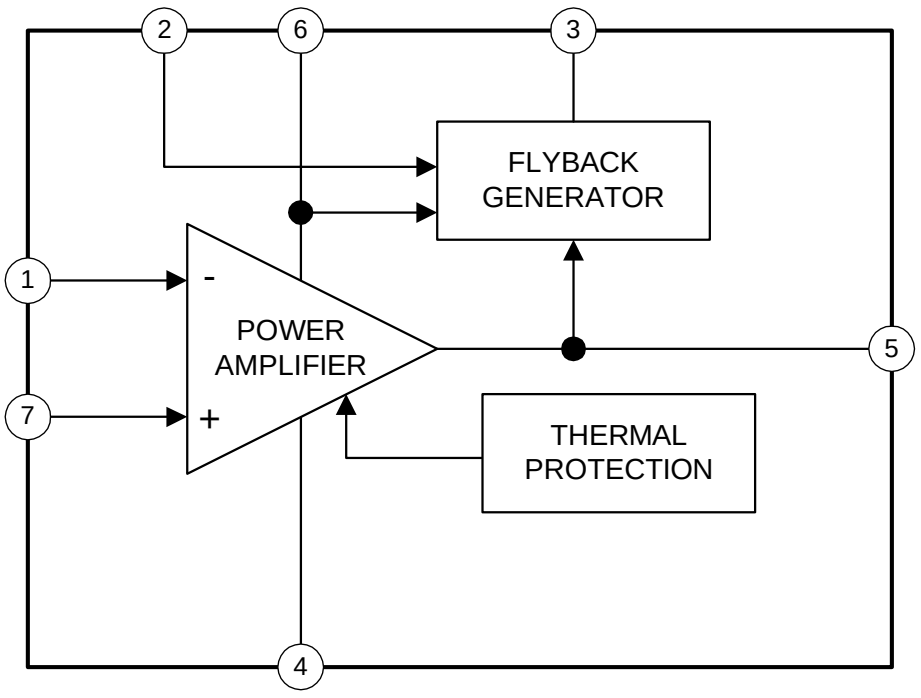
VSP9417BC3G



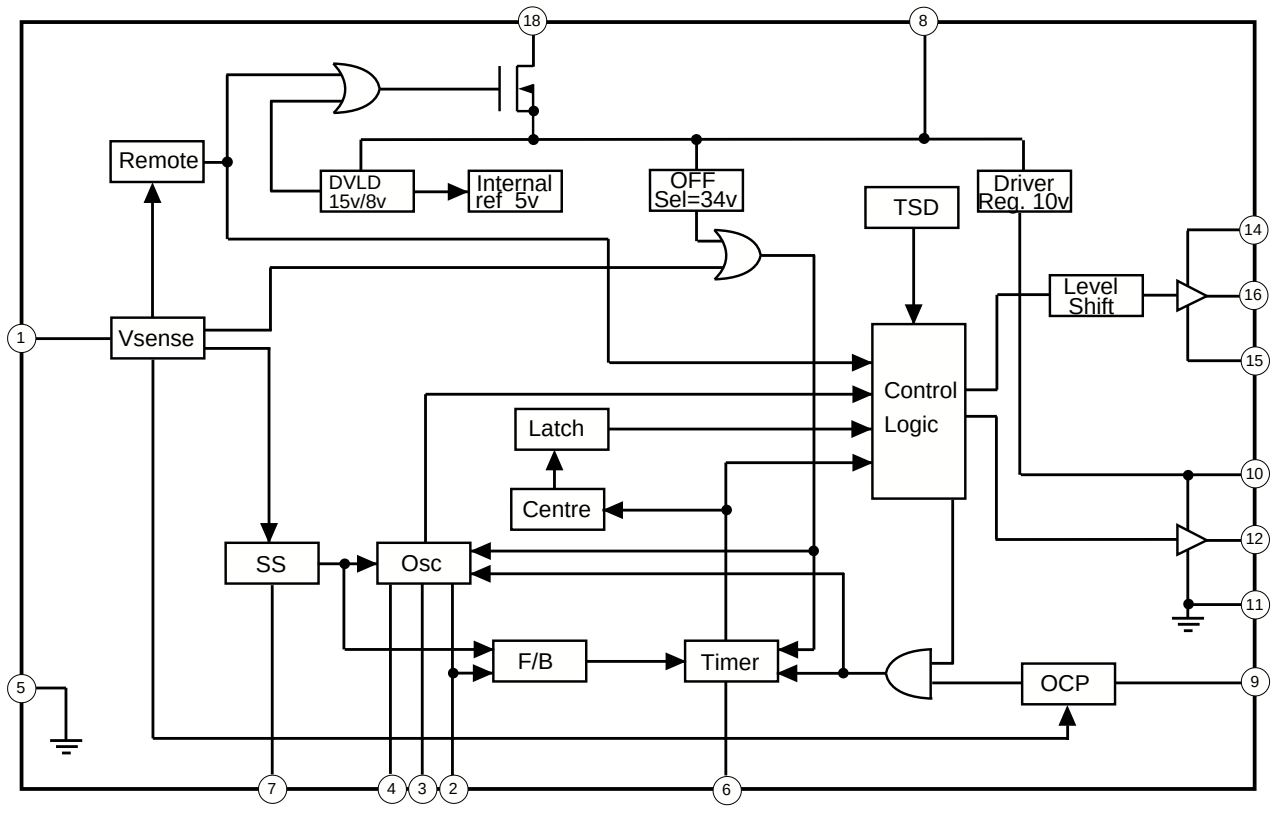
(TOP VIEW)

5-5. IC BLOCK DIAGRAMS

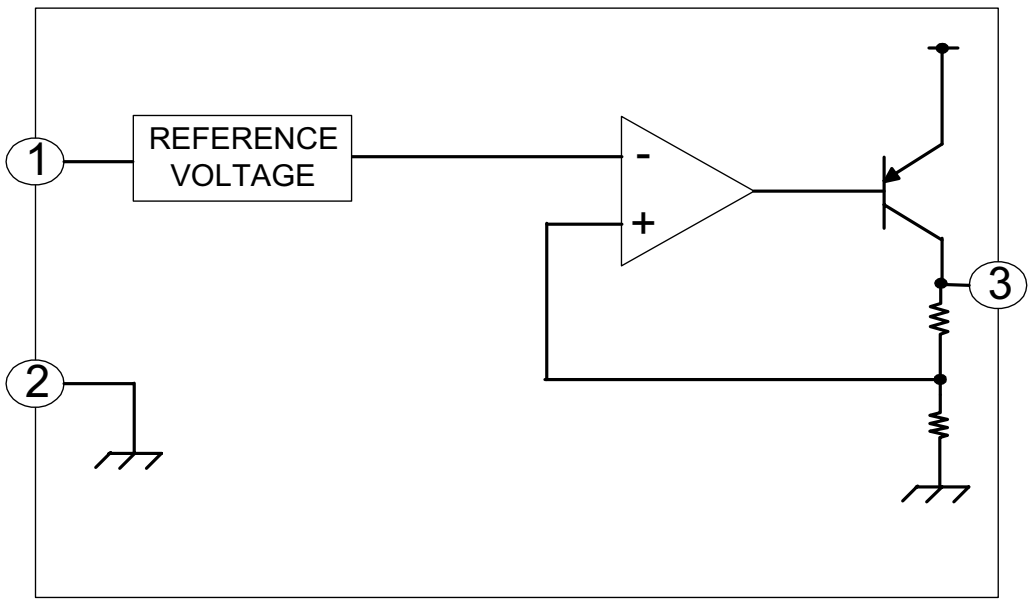
A BOARD IC5400 STV9379A



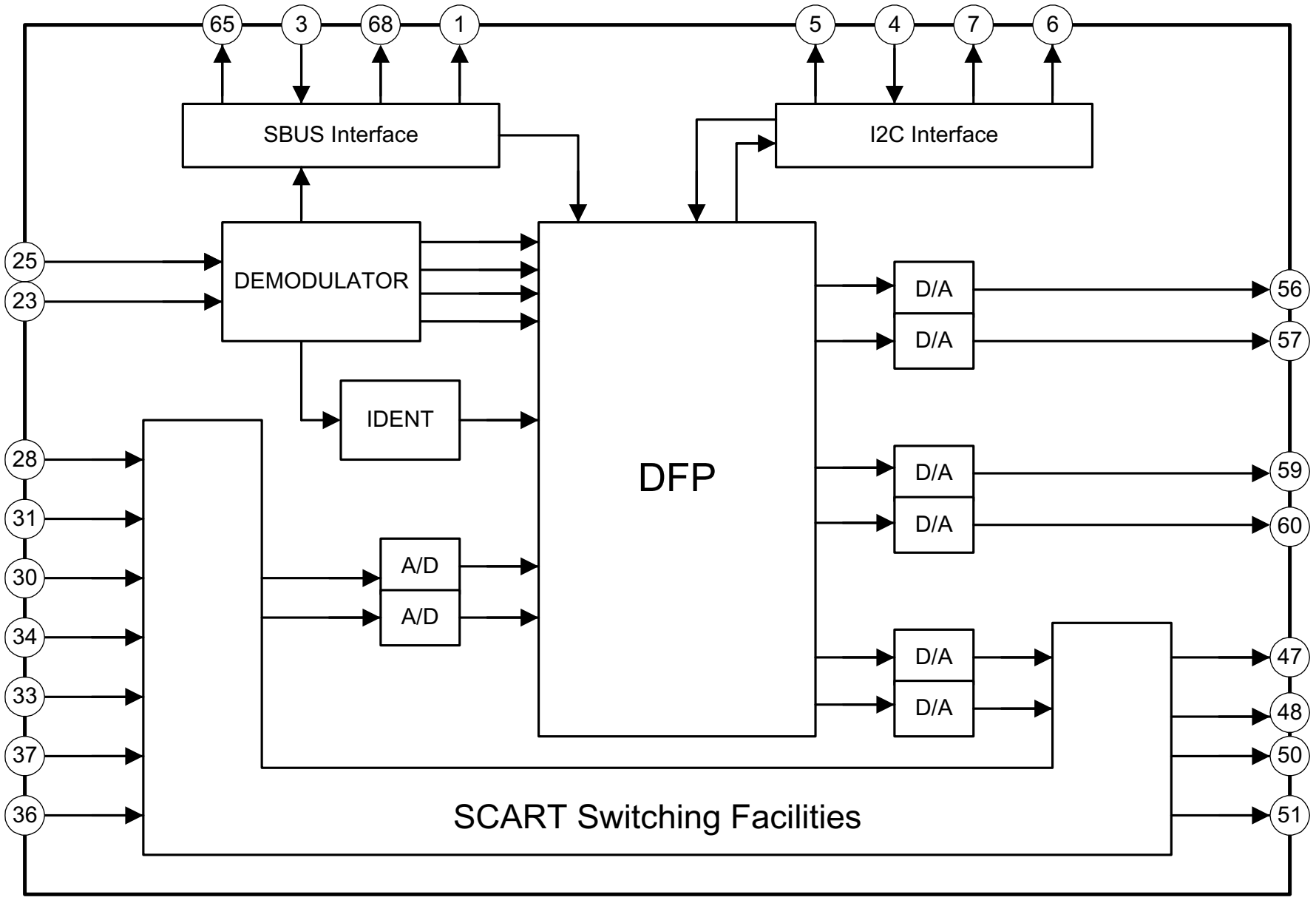
G BOARD IC6001 MCZ3001D



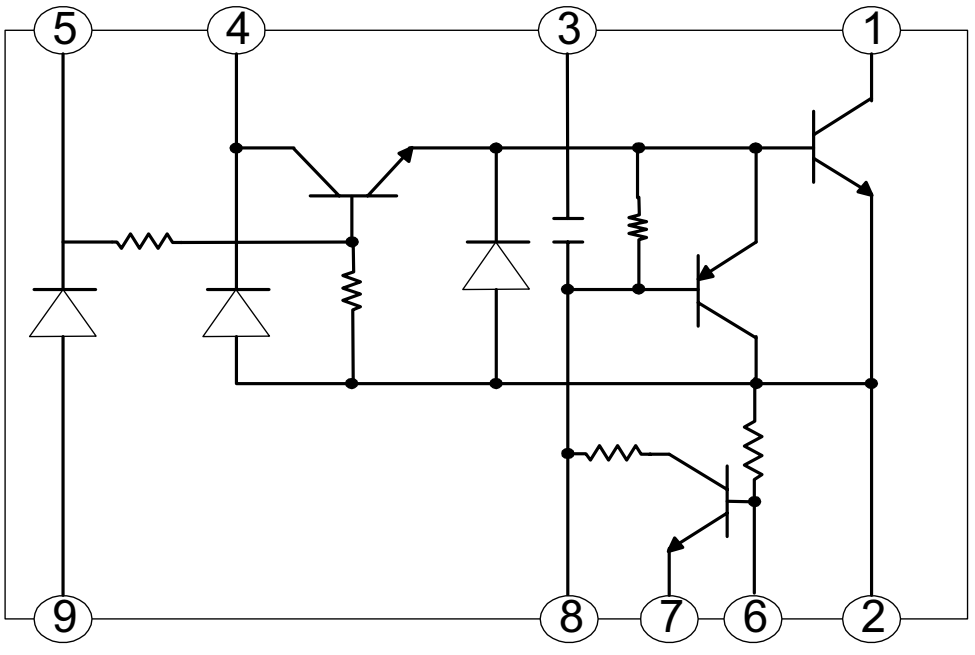
A BOARD IC6210 BA033T



A BOARD IC2000 MSP3411G



G BOARD IC6003 SE135N-LF4



PB@QFLK 3
BUMILABA SFBTP

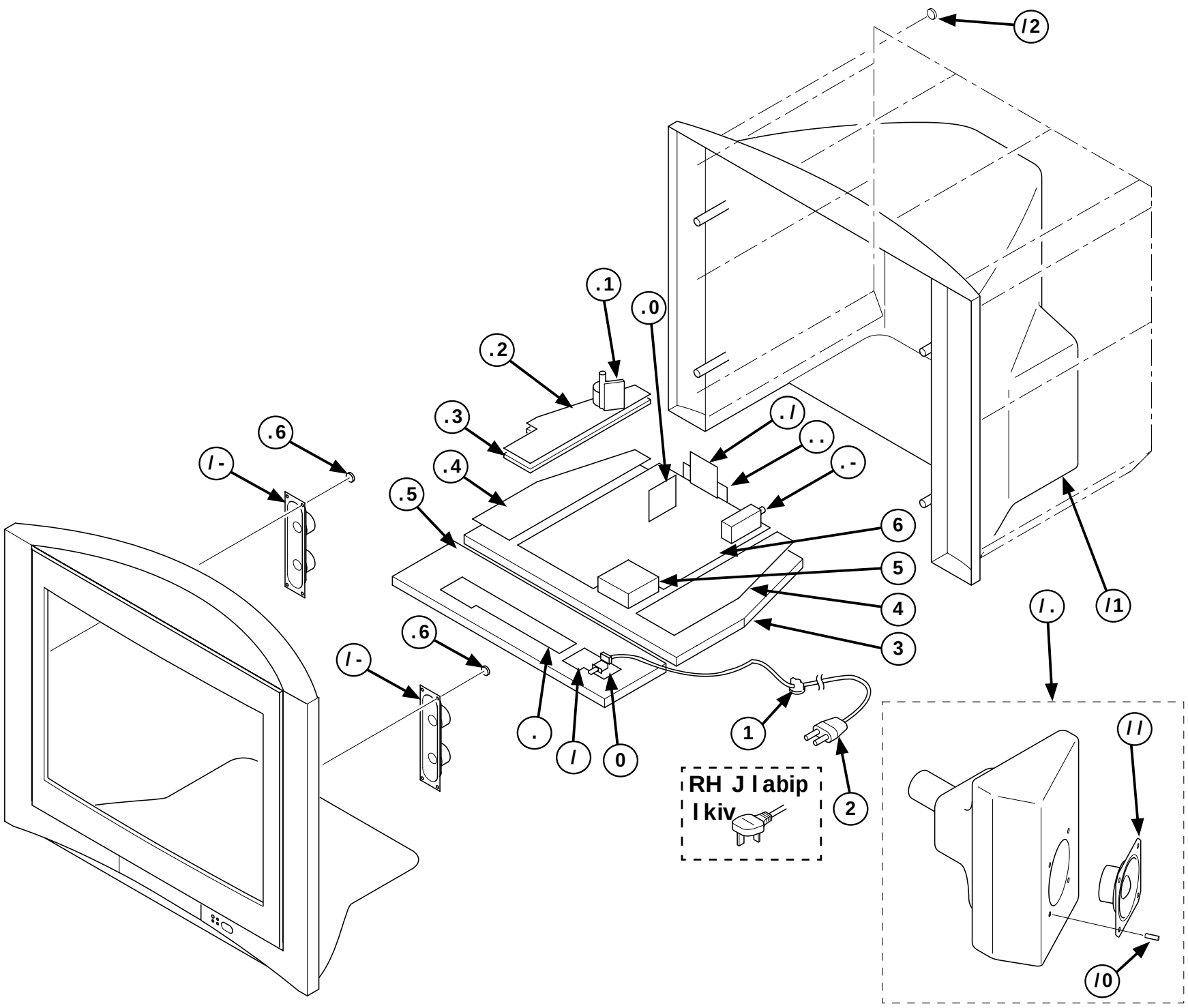
Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

KLQB 7

- Fqb j p t fqe kl m^oq kr j _bo ^ka kl abp`ofmqflk ^ob klq pql`hba _b`^rpb qebv ^ob pbial j obnrfoba clo olrqfkb pbosf`b+
- Qeb `lkpqor`qflk m^oqp lc ^k ^ppb j _iba m^oq ^ob fkaf`^qba t fqe ^ `lii^qflk kr j _bo fk qeb ob j ^ohp `lir j k+
- Fqb j p j ^ohba ¦'´ ^ob klq pql`hba pfk`b qebv ^ob pbial j obnrfoba clo olrqfkb pbosf`b+ Pl j b abi^v pelria _b ^kqf`fm^qba t ebk loabofkd qebpb fqb j p+

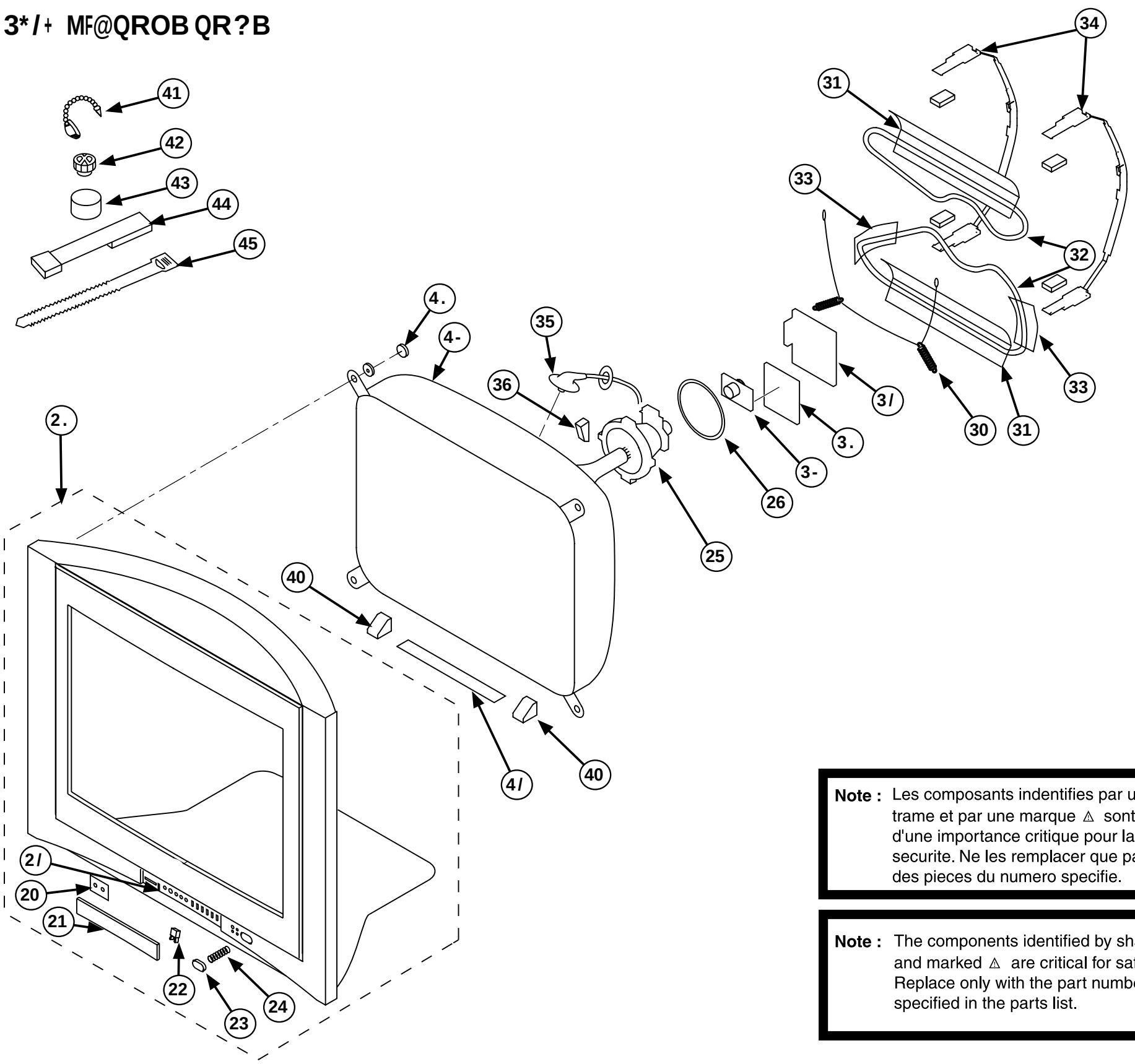
3*.+ @E>PPFP



OBC+KL+	M>OQ+KL	ABP@OFMQFLK OBJ>OH
.	'>*.1-2*3-6*>	E. ?L>OA @LJMIBQB
/	'>*.1-2*3..*>	C. ?L>OA) @LJMIBQB
0 ¸	.*24.*100*/.	PTFQ@E) MRPE %>@ MLTBO&
1	'1*/-/*20.*-.	>@ @LOA IL@H %P@&
2 ¸	'.*450*-50*..	@LOA) MLTBO %TFQE CFIQBO&
3	'1*-62*406*-/	?O>@HBQ) J>FK
4	>*.0-/*630*>	D ?L>OA) @LJMIBQB
5	.*123*2.-*..	@LFI) @ELHB 15+2JJE
6	'>*.0-/*63.*>	> ?L>OA) @LJMIBQB %HS*/5CN53? HS*0/CN53?&
	'>*.0-/*63/*>	> ?L>OA) @LJMIBQB %HS*/5CN53B HS*0/CN53B,H&
	'>*.0-/*64/*>	> ?L>OA) @LJMIBQB %HS*0/CN53R&
.-	5*265*2/6*.-	COLKQBKA ?QC*BR3.. %HS*0/CN53R&
	5*265*200*.-	COLKQBKA ?QC*B@1.. %HS*/5CN53B) HS*0/CN53B,H&
	5*265*202*/-	COLKQBKA ?QC*BC1.. %HS*/5CN53?) HS-0/CN53?&
..	'1*.--*5-.*-.	PRMMLOQBO) G
./	'>*.1-2*3/0*>	G ?L>OA) @LJMIBQB
.0	'>*.0-/*632*>	? ?L>OA) @LJMIBQB

OBC+KL+	M>OQ+KL	ABP@OFMQFLK OBJ>OH
.1 ¸	.*120*045*/.	QO>KPCLOJBO >PPV) CIV?>@H %KU*3-/-,,W/.1& %HS*/5CN53&
¸	.*120*111*/.	QO>KPCLOJBO >PPV) CIV?>@H %KU*3-/-,,W/?1& %HS*0/CN53&
.2	'>*.0-/*214*>	A/ ?L>OA) @LJMIBQB HS*/5CN53
	'>*.0-/*216*>	A/ ?L>OA) @LJMIBQB HS*0/CN53
.3	'1*-62*405*-.	?O>@HBQ) A/
.4	'>*.0-/*631*>	A ?L>OA) @LJMIBQB HS*/5CN53
	'>*.0-/*64.*>	A ?L>OA) @LJMIBQB HS*0/CN53
.5	'1*-60*565*..	?O>@HBQ) E
.6	1*-25*54-*-.	P@OBT %1u.3&T%(&M Q>MMFKD
/-	.*2/6*1-5*..	PMB>HBO %1+/u/1@J&
/.	'>*.3-0*-51*>	TLLCBO @LJMIBQB >PPV //*/0
//	.*2/6*1.4*..	PMB>HBO %5@J&
/0	4*352*330*4.	P@OBT (?SQM 1u.3 QVMB/ FQ*0
/1	1*-60*5/6*..	OB>O @LSBO %HS*/5CN53&
	1*-60*563*0.	OB>O @LSBO %HS*0/CN53&
/2	4*352*315*46	P@OBT (?SQM 0u./ QVMB/ FQ*0

3*/+ MF@QROB QR?B



Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

OBC+KL+		M>OQ+KL	ABP@OFMQFLK	OBJ>OH
2.		U*1-10*.55*.	?BWKBQ >PPV HS*/5CN53?,B	2/*24
		U*1-10*.51*.	?BWKBQ >PPV HS*0/CN53?,B,H	2/*24
		U*1-1.*031*/	?BWKBQ >PPV HS*0/CN53R	2/*24
2/		'1*-54*200*-.	JRIQF?RQQLK	
20		1*-54*20-*-.	DRFAB) IFDEQ	
21		1*-60*5/4*-.	ALLO %HS*/5CN53&	
		1*-60*564*-.	ALLO %HS*0/CN53&	
22		1*-52*2-4*-0	PMOFKD) ALLO	
23		1*-54*2/4*-.	MLTBO ?RQQLK	
24		1*/-1*1/3*-.	PMOFKD	
25	¸	5*12.*2/.*0.	ABCIB@QFLK VLHB %V/5OS@0*I/& %HS*/5CN53&	
	¸	.*12.*15-*//	ABCIB@QFLK VLHB %V0/OS@/& %HS*0/CN53&	
26		.*1.6*030*..	@LFI) K> OLQ>QFLK	
3-	¸	5*120*-..*..	KB@H >PPV) %K>/66*J&	
3.		'>*.1-2*3/-*>	SJ ?L>OA) @LJMIBQB	
3/		'>*.1-2*3.-*>	@ ?L>OA) @LJMIBQB	
30		1*036*0.5*/.	PMOFKD) QBKPFLK	
31		'1*/-0*06-*..	@RPEFLK) AD@ %HS*/5CN53&	
		'1*-62*260*-.	@RPEFLK) AD@ %HS*0/CN53&	

OBC+KL+		M>OQ+KL	ABP@OFMQFLK	OBJ>OH
32	¸	.*1/1*553*..	@LFI) ABD>RPPFKD %HS*/5CN53&	
	¸	.*1/1*555*..	@LFI) ABD>RPPFKD %HS*0/CN53&	
33		'1*06/*201*/.	@RPEFLK) AD@ %HS*0/CN53&	
34		'1*/-1*5./*-/	ELIABO) AD@ %/2«& %HS*/5CN53&	
		'1*/-1*435*-/	ELIABO) AD@ %/6«& %HS*0/CN53&	
35	¸	.*/2.*613*..	@>M >PPV) EFDE*SLIQ>DB %HS*0/CN53&	
	¸	.*/2.*613*/.	@>M >PPV) EFDE*SLIQ>DB %HS*/5CN53&	
36		0*4-1*162*-0	PM>@BO) AV	
4-	¸	5*402*-66*-2	MF@QROB QR?B %T33IIU-3-U& HS*/5CN53	
	¸	5*402*-46*-2	MF@QROB QR?B %T43IIW-3-U& HS*0/CN53	
4.		1*-13*432*./	P@OBT) Q>MMFKD 4(@OLTK T>PEBO	
4/		1*/-1*333*-.	PEBBQ) ?ILQQFKD	
40		'1*/-3*.3-*-.	PRMMLOQ @OQ %HS*/5CN53&	
		'1*-54*26-*-0	PRMMLOQ @OQ %HS*0/CN53&	
41		1*0-5*54-*--	@IFM) IB>A TFOB	
42		.*12/*-61*--	J>DKBQ) OLQ>Q>?IB AFPH8 .2JJ ì	
43		.*12/*-0/*--	J>DKBQ) AFPH8 .-JJ ì	
44		U*1054*/.1*.	MBOJ>IILV) @LOOB@QFLK	
45		0*4-.*--4*--	?>KA) ?FKAFKD	

PB@QFLK 4
BIB@QOF@>I M>OQP IFPQ

M>OQP IFPQFKD Q>?IB LC @LKQBKQP

		M^db
A/ ?L>OA @L J J LK M^oqp Ifpq 7	M^oqp `l j j lk ql ^ii j labip ifpqba fk qefp j ^kr^i ++++++++++++++++++++	21
A/ ?L>OA S>OF>KQ M^oqp Ifpq 7	M^oqp qe^q _bilkd lkiv ql qeb j labi pmb`fªba	
J labi		
HS*/5CN53	++++++++++++++++++++

' >*.0-/*214*> A/ ?I^oa @I j mibqb HS*/5CN53
' >*.0-/*216*> A/ ?I^oa @I j mibqb HS*0/CN53

A/ ?I^oa @I j j Ik M^oqp

0*4.-*245*-. @LSBO) SLIRJB) 3 JLIA
1*05/*521*-. P@OBT %J0U5&) M) PT %(&

9 @>M>@FQLO ;

@35--	.*.3/*631*..	@BO>JF@ @EFM	-+--.RC	.-+--" 2-S
@35-.	.*./3*631*..	BIB@Q	.-RC	/-+--" 2-S
@35-/	.*./3*631*..	BIB@Q	.-RC	/-+--" 2-S
@35-0	.*./3*63-*..	BIB@Q	.RC	/-+--" 2-S
@35-1	.*.3/*631*..	@BO>JF@ @EFM	-+--.RC	.-+--" 2-S
@35-2	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--" /2S
@35-3	.*..4*//5*4.	JVI>O	/+/RC	.-+--" 12-S
@35-4	.*.-1*33/*6.	BIB@Q	//RC	/-+--" /2S
@35-5	.*./3*631*..	BIB@Q	.-RC	/-+--" 2-S
@35-6	.*.03*5.0*..	CFIJ	35-MC	2+--" .--S
@35.-	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--" /2S
@35..	.*.3/*633*..	@BO>JF@ @EFM	-+--//RC	.-+--" 2-S
@35./	.*.0-*162*--	JVI>O	-+.RC	2+--" 2-S
@35.0	.*./3*614*..	BIB@Q	14RC	/-+--" 02S
@35.1	.*./3*634*..	BIB@Q	14RC	/-+--" 2-S
@35.2	.*.3/*..2*--	@BO>JF@	00-MC	.-+--" .HS
@35.3	.*.03*.4.*--	CFIJ	-+00RC	2+--" 2-S
@35.4	.*.03*164*5.	CFIJ	-+.RC	2+--" 2-S
@35.5	.*.3/*..2*--	@BO>JF@	00-MC	.-+--" .HS
@35.6	.*.32*620*..	CFIJ	14---MC	0" 5--S
@35/-	.*.03*.56*--	JVI>O	-+.RC	.-+--" /2-S
@35/.	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--" /2S
@35/0	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--" /2S
@35/1	.*./3*630*..	BIB@Q	1+4RC	/-+--" 2-S
@35/2	.*./3*6/4*..	BIB@Q	//--RC	/-+--" .-S
@35/3	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--" /2S
@35/4	.*..2*01-*..	@BO>JF@ @EFM	-+//RC	.-+--" /2S
@35/5	.*.31*0.2*..	@BO>JF@ @EFM	14-MC	2+--" 2-S
@35/6	.*./3*614*..	BIB@Q	14RC	/-+--" 02S
@350.	.*./3*633*..	BIB@Q	00RC	/-+--" 2-S
@350/	.*.3/*633*..	@BO>JF@ @EFM	-+--//RC	.-+--" 2-S
@3500	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--" /2S
@3501	.*./3*631*..	BIB@Q	.-RC	/-+--" 2-S
@3502	.*.32*3-4*..	CFIJ	.----MC	0" 5--S
@3503	.*.0-*162*--	JVI>O	-+.RC	2+--" 2-S
@3504	.*.0-*14.*--	JVI>O	-+--.RC	2+--" 2-S
@3505	.*.0-*162*--	JVI>O	-+.RC	2+--" 2-S
@3506	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--" /2S
@351-	.*.32*0.6*..	@BO>JF@ @EFM	-+.RC	2-S
@56--	.*.3/*./6*--	@BO>JF@	.2-MC	.-+--" /HS
@56-.	.*.3/*.0.*..	@BO>JF@	//-MC	.-+--" /HS
@56-/	.*./6*565*--	CFIJ	-+--//RC	2+--" 30-S

OBC+KL+ M>OQ+KL ABP@OFMQFLK OBJ>OH

@56-0	.*.-4*302*..	BIB@Q	1+4RC	/-+--" .3-S
@56-1	.*.04*.2-*..	CFIJ	-+-.RC	2+--" .--S
@56-2	.*.03*/-2*..	JVI>O	-+-//RC	2+--" 30-S
@56-4	.*./3*614*..	BIB@Q	14RC	/-+--" 02S
@56-5	.*/.3*5-6*..	JBQ>I @EFM	.--	2" .,.-T

9 @LKKB@QLO ;

@K35--	.*362*6.2*..	Q>? %@LKQ>@Q&	
@K35-.	' .*231*2.-*..	MIRD) @LKKB@QLO 4M	
@K35-/	.*5.4*6.4*..	MFK) @LKKB@QLO 0M	
@K35-0	' .*231*2.-*..	MIRD) @LKKB@QLO 4M	
@K35-1	.*362*6.2*..	Q>? %@LKQ>@Q&	
@K35-2	' .*2-5*451*--	MFK) @LKKB@QLO %2JJ MFQ@E& .M	

9 AFLAB ;

A35--	5*4.6*-36*23	AFLAB RAWPQB*.43+/?	
A35-/	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A35-0	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A35-6	5*4.6*-50*61	AFLAB CRC1--2	
A35.1	5*4.6*-30*40	AFLAB A.KI/-R*QO	
A35.2	5*4.6*643*66	AFLAB AQW2+.?	
A35.3	5*4.6*-5.*65	AFLAB JJOW3S5Q.	
A35.4	5*4.6*2.-*-/	AFLAB A.KP1	
A35.5	5*4.6*-5/*-0	AFLAB JJOW.2SQ.	
A35.6	5*4.6*-5/*-0	AFLAB JJOW.2SQ.	
A35/-	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A35/.	5*4.6*-50*33	AFLAB RAWPQB*.4.5?	
A35//	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A35/0	.*202*.10*4.	IB>A) GRJMBO %4+2JJ&	
A35/1	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A35/2	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A35/3	5*4.6*-5/*--	AFLAB JJOW1S4Q.	
A35/4	.*/.3*531*..	PELOQ @EFM -	
A56--	5*4.6*615*12	AFLAB BO>//*-5	
A56-.	5*4.6*66.*00	AFLAB .PP.00Q*44	

9 CBOOFQB ?B>A ;

C?35--	.*1.-*064*/.	CBOOFQB	.+.RE
C?56--	.*1.-*064*/.	CBOOFQB	.+.RE

9 F@ ;

F@35--	5*426*253*.4	F@ QI.10.@W*>M	
F@35-.	5*426*4--*-4	F@ KGJ/6-0J	
F@35-/	5*426*34-*0-	F@ J@WO--.A	
F@35-0	5*426*.65*0.	F@ RM@.-60G*.*Q	
F@35-1	5*426*4-.*-.	F@ KGJ/6-1J	

9 @LFI ;

I35--	.*1/5*62-*0.	FKAR@QLO	./2RE
I35-.	.*1./*2/-*..	FKAR@QLO	0+6RE

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
I35-/	.*1./*2/-*..	FKAR@QLO	0+6RE
I56--	.*1-3*341*..	FKAR@QLO	0+0JE
	9 MELQL@LRMIBO ;		
ME35--	3*3--*.54*-.	MELQL @LRMIBO	M@./OV//GLLC
ME35-.	3*3--*.54*-.	MELQL @LRMIBO	M@./OV//GLLC
	9 QO>KPFPQLO ;		
N35--	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N35-.	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N35-/	3*22-*2/3*..	QO>KPFPQLO	/PH/51/%I?P/PLKV&
N35-0	3*22-*2/3*..	QO>KPFPQLO	/PH/51/%I?P/PLKV&
N35-1	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N35-3	5*4/6*1/.*//	QO>KPFPQLO	RK//..
N35-4	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N35-5	5*4/6*1/.*//	QO>KPFPQLO	RK//..
N35-6	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N35.-	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N35..	5*4/6*6-.*-3	QO>KPFPQLO	AQ>.11BH
N35./	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N35.0	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N56--	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N56-.	3*22-*4--*-.	QO>KPFPQLO	PQM2KH1-W%-OOV&
	9 OBPFPQLO ;		
035--	.*/.3*504*..	JBQ>I @EFM	//H 2" .,.-T
035-.	.*/.3*516*..	JBQ>I @EFM	//-H 2" .,.-T
035-/	.*/.3*51.*..	JBQ>I @EFM	14H 2" .,.-T
035-0	.*/.3*504*..	JBQ>I @EFM	//H 2" .,.-T
035-1	.*/14*510*..	@>O?LK	0+0H 2" .,1T
035-2	.*/.5*542*..	JBQ>I @EFM	.2H -+2" .,.-T
035-4	.*/.5*512*..	JBQ>I @EFM	5/- -+2" .,.-T
035-5	.*/-/*600*3.	CRPF?IB	-+. .-" .,/T
035-6	.*/.5*541*..	JBQ>I @EFM	.0H -+2" .,.-T
035.-	.*/.5*536*..	JBQ>I @EFM	5+/H -+2" .,.-T
035..	.*202*0-0*--	IB>A) GRJMBO %2+-JJ&	
035./	.*/12*145*/.	JBQ>I	14-H ." .,1T
035.0	.*/12*145*/.	JBQ>I	14-H ." .,1T
035.1	.*/.5*6./*..	JBQ>I @EFM	2.-H -+2" .,.-T
035.2	.*/.3*531*..	PELOQ @EFM	-
035.3	.*/.5*506*..	JBQ>I @EFM	14- -+2" .,.-T
035.4	.*/16*060*..	@>O?LK	.- 2" .,1T
035.5	.*/.3*5-0*..	JBQ>I @EFM	00 2" .,.-T
035.6	.*/.5*5/0*..	JBQ>I @EFM	.-- -+2" .,.-T
035/-	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
035/.	.*/.3*504*..	JBQ>I @EFM	//H 2" .,.-T
035/0	.*/16*060*..	@>O?LK	.- 2" .,1T
035/1	.*/.5*564*..	JBQ>I @EFM	./-H -+2" .,.-T
035/2	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
035/3	.*/.3*5/6*..	JBQ>I @EFM	1+4H 2" .,.-T

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
035/6	.*/12*161*/.	JBQ>I	/+/J /" .,1T
0350-	.*/16*10.*..	@>O?LK	.2H 2" .,1T
0350/	.*/12*161*/.	JBQ>I	/+/J /" .,1T
03500	.*/16*044*..	@>O?LK	-+14 2" .,1T
03501	.*/10*646*/.	JBQ>I LUFAB	-+. 2" /T
03502	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
03503	.*/.3*531*..	PELOQ @EFM	-
03504	.*/16*1.6*..	@>O?LK	.+2H 2" .,1T
03505	.*/3-*-62*..	@>O?LK	14- 2" .,/T
03506	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0351-	.*/.5*514*..	JBQ>I @EFM	.H -+2" .,.-T
0351.	.*/.5*522*..	JBQ>I @EFM	/+/H -+2" .,.-T
0351/	.*/.5*524*..	JBQ>I @EFM	/+4H -+2" .,.-T
03510	.*/.3*530*..	JBQ>I @EFM	0+0J 2" .,.-T
03511	.*/.5*534*..	JBQ>I @EFM	3+5H -+2" .,.-T
03512	.*/.5*562*..	JBQ>I @EFM	.--H -+2" .,.-T
03513	.*/.3*504*..	JBQ>I @EFM	//H 2" .,.-T
03515	.*/.3*520*..	JBQ>I @EFM	14-H 2" .,.-T
03516	.*/.3*501*..	JBQ>I @EFM	./H 2" .,.-T
0352/	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
03520	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
03521	.*/.3*516*..	JBQ>I @EFM	//-H 2" .,.-T
03522	.*/.3*464*..	JBQ>I @EFM	.- 2" .,.-T
03524	.*/.3*51.*..	JBQ>I @EFM	14H 2" .,.-T
03525	.*/.3*504*..	JBQ>I @EFM	//H 2" .,.-T
03526	.*/.3*51.*..	JBQ>I @EFM	14H 2" .,.-T
0353-	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
0353.	.*/.2*152*--	JBQ>I	14-H ." .,1T
0353/	.*/.3*51.*..	JBQ>I @EFM	14H 2" .,.-T
03530	.*/.5*520*..	JBQ>I @EFM	.+5H -+2" .,.-T
03532	.*/16*1..*..	@>O?LK	00- 2" .,1T
03533	.*/.6*416*2.	JBQ>I	.-H 2" .,/T
03534	.*/.2*152*--	JBQ>I	14-H ." .,1T
03536	.*/.5*532*..	JBQ>I @EFM	2+3H -+2" .,.-T
0354-	.*/.6*42-*6.	JBQ>I	//H 2" .,/T
0354.	.*/.3*512*..	JBQ>I @EFM	.--H 2" .,.-T
03540	.*/.5*554*..	JBQ>I @EFM	14H -+2" .,.-T
03541	.*/.5*562*..	JBQ>I @EFM	.--H -+2" .,.-T
03542	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
03544	.*/.2*100*--	JBQ>I	0+0H ." .,1T
03545	.*/.2*114*--	JBQ>I	./H ." .,1T
03546	.*/.2*114*--	JBQ>I	./H ." .,1T
0355-	.*/.2*114*--	JBQ>I	./H ." .,1T
0355.	.*/.2*114*--	JBQ>I	./H ." .,1T
03550	.*/.5*514*..	JBQ>I @EFM	.H -+2" .,.-T
03551	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
056-.	.*/3-*./0*..	@>O?LK	.--H 2" .,/T
056-1	.*/16*1/6*..	@>O?LK	.-H 2" .,1T
056-4	.*/3-*./0*..	@>O?LK	.--H 2" .,/T
056-5	.*/3-*./0*..	@>O?LK	.--H 2" .,/T

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
056-6	.*/3-*./0*..	@>O?LK .--H 2"	.,/T
056.-	.*/.3*5/4*..	JBQ>I @EFM 0+0H 2"	.,.-T
056..	.*/.3*5/.*..	JBQ>I @EFM .H 2"	.,.-T
056./	.*/.3*500*..	JBQ>I @EFM .-H 2"	.,.-T
056.0	.*/.3*5-6*..	JBQ>I @EFM .--H 2"	.,.-T
	9 OBPFPQLO S>OF>?IB ;		
OS35-.	.*//2*3/4*6.	OBP) S>O) >AG) @BOJBQ /H	
	9 PM>OH D>M ;		
PD35--	.*2.4*166*/.	D>M) PM>OH	
	9 QO>KPCLOJBO ;		
Q56--	.*104*36-*..	QO>KPCLOJBO) CBOOFQB %ACQ&	

S^of^kq M^oqp HS*/5CN53

	9 OBPFPQLO ;		
056--	.*/.3*153*/.	JBQ>I LUFAB 5+/H 2"	0T
056-/	.*/.3*153*/.	JBQ>I LUFAB 5+/H 2"	0T
056-0	.*/10*3.3*/.	JBQ>I LUFAB 3+5H 2"	0T
056-2	.*/.3*153*/.	JBQ>I LUFAB 5+/H 2"	0T
056-3	.*/.3*153*/.	JBQ>I LUFAB 5+/H 2"	0T
	9 QO>KPCLOJBO ;		
Q35-- ¸	.*120*045*/.	QO>KPCLOJBO >PPV CIV?>@H KU*3-/-,,W/.1	

S^of^kq M^oqp HS*0/CN53

	9 OBPFPQLO ;		
056--	.*/10*3.5*/.	JBQ>I LUFAB .-H 2"	0T
056-/	.*/10*3.6*/.	JBQ>I LUFAB ./H 2"	0T
056-0	.*/10*3.6*/.	JBQ>I LUFAB ./H 2"	0T
056-2	.*/10*3.6*/.	JBQ>I LUFAB ./H 2"	0T
056-3	.*/10*3.5*/.	JBQ>I LUFAB .-H 2"	0T
	9 QO>KPCLOJBO ;		
Q35-- ¸	.*120*111*/.	QO>KPCLOJBO >PPV CIV?>@H KU*3-/-,,W/?1	

' >*.0-/*63.*> > ?l^oa @l j mibqb HS*/5CN53? # HS*0/CN53?
' >*.0-/*63/*> > ?l^oa @l j mibqb HS*/5CN53B) HS0/CN53B # HS0/CN53H
' >*.0-/*64/*> > ?l^oa @l j mibqb HS*0/CN53R

> ?l^oa @l j j lk M^oqp

	9 @>M>@FQLO ;		
@..-0	.*.3/*6/4*..	@BO>JF@ @EFM .--MC	2+--" 2-S
@..-1	.*.3/*6/4*..	@BO>JF@ @EFM .--MC	2+--" 2-S
@..-2	.*./3*634*..	BIB@Q 14RC	/-+--" 2-S
@..-3	.*.3/*635*..	@BO>JF@ @EFM -+--14RC	.-+--" 2-S
@..-4	.*./3*600*..	BIB@Q .--RC	/-+--" .3S
@..-5	.*.3/*6/.*..	@BO>JF@ @EFM 00MC	2+--" 2-S
@..-6	.*.3/*6/.*..	@BO>JF@ @EFM 00MC	2+--" 2-S
@.0--	.*.3/*635*..	@BO>JF@ @EFM -+--14RC	.-+--" 2-S
@.0-/	.*/.3*531*..	PELOQ @EFM -	
@.0-0	.*.3/*6/5*..	@BO>JF@ @EFM ./-MC	2+--" 2-S
@.0-1	.*/.3*531*..	PELOQ @EFM -	
@.0-4	.*./2*56.*..	@BO>JF@ @EFM -+14RC	.-+--" .-S
@/---	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/--.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/--/	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/--1	.*.31*--1*..	@BO>JF@ @EFM -+.RC	.-+--" /2S
@/--2	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@/--3	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/--4	.*.3/*633*..	@BO>JF@ @EFM -+--//RC	.-+--" 2-S
@/--6	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@/-.-	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@/-..	.*.3/*633*..	@BO>JF@ @EFM -+--//RC	.-+--" 2-S
@/-./	.*.3/*633*..	@BO>JF@ @EFM -+--//RC	.-+--" 2-S
@/-.0	.*.3/*633*..	@BO>JF@ @EFM -+--//RC	.-+--" 2-S
@/-.1	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@/-.3	.*.3/*6/4*..	@BO>JF@ @EFM .--MC	2+--" 2-S
@/-.4	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@/-.5	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@/-.6	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/-/-	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/-/.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/-//	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@/-/0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/-/1	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@/-/3	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/-/4	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/-/5	.*.3/*6-3*..	@BO>JF@ @EFM .+2MC	-+/2MC 2-S
@/-/6	.*.3/*6-3*..	@BO>JF@ @EFM .+2MC	-+/2MC 2-S
@/-0-	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@/-0.	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@/-0/	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@/-1-	.*.3/*6/4*..	@BO>JF@ @EFM .--MC	2+--" 2-S
@//--	.*./3*63-*..	BIB@Q .RC	/-+--" 2-S
@//-.	.*.31*--1*..	@BO>JF@ @EFM -+.RC	.-+--" /2S
@//-/	.*./3*63-*..	BIB@Q .RC	/-+--" 2-S
@//-0	.*./3*630*..	BIB@Q 1+4RC	/-+--" 2-S
@//-1	.*./3*63-*..	BIB@Q .RC	/-+--" 2-S
@//-2	.*./3*63-*..	BIB@Q .RC	/-+--" 2-S
@//-3	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@//-4	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@/0--	.*./3*602*..	BIB@Q 14-RC	/-+--" .3S
@/0-.	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/0-/	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/0-0	.*./3*614*..	BIB@Q 14RC	/-+--" 02S

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
@/0-1	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/0-2	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@/0-3	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@/1--	.*.03*.42*--	CFIJ -+35RC	2+--" 2-S
@/1-.	.*.32*./5*..	@BO>JF@ @EFM -+//RC	.3S
@/1-/	.*.30*.02*--	@BO>JF@ @EFM 23-MC	2+--" 2-S
@/1-0	.*..2*006*..	@BO>JF@ @EFM -+.RC	.-+--" 2-S
@/1-1	.*.3/*633*..	@BO>JF@ @EFM -+--//RC	.-+--" 2-S
@/1-2	.*.3/*6/4*..	@BO>JF@ @EFM .--MC	2+--" 2-S
@/1-3	.*.30*-/.*6.	@BO>JF@ @EFM -+-.RC	.-+--" 2-S
@/1-4	.*.31*2-2*..	@BO>JF@ @EFM /+/RC	.3S
@/1-5	.*./3*630*..	BIB@Q 1+4RC	/-+--" 2-S
@/1-6	.*..2*006*..	@BO>JF@ @EFM -+.RC	.-+--" 2-S
@/1.-	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/1..	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/1./	.*./3*610*..	BIB@Q //--RC	/-+--" /2S
@/1.0	.*./3*610*..	BIB@Q //--RC	/-+--" /2S
@/1.1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/2--	.*.-4*6.1*..	BIB@Q .---RC	/-+--" 2-S
@/2-.	.*.-4*6.1*..	BIB@Q .---RC	/-+--" 2-S
@/2-/	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/2-0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/2-1	.*./3*626*..	BIB@Q -+14RC	/-+--" 2-S
@/2-2	.*.-4*555*..	BIB@Q 14RC	/-+--" /2S
@/2-3	.*.-4*555*..	BIB@Q 14RC	/-+--" /2S
@/2-4	.*./3*626*..	BIB@Q -+14RC	/-+--" 2-S
@/2-5	.*..2*006*..	@BO>JF@ @EFM -+.RC	.-+--" 2-S
@/2./	.*.31*--1*..	@BO>JF@ @EFM -+.RC	.-+--" /2S
@/2.0	.*.31*--1*..	@BO>JF@ @EFM -+.RC	.-+--" /2S
@/2.1	.*.-4*6-4*..	BIB@Q //RC	/-+--" 2-S
@/3-0	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@/3.6	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@2.-0	.*./3*63-*..	BIB@Q .RC	/-+--" 2-S
@2.-3	.*./3*600*..	BIB@Q .--RC	/-+--" .3S
@2.-6	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@2..-	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@2...	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@2../	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@2..3	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@2..4	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@2..5	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@2..6	.*.-4*5/0*..	@BO>JF@ @EFM -+14RC	.-+--" .3S
@2./-	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@2./.	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@2.//	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@2./0	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@2./1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@2./2	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@2./3	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/-.	.*./3*614*..	BIB@Q 14RC	/-+--" 02S

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
@2/-/	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@2/-0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@2/-1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@2/-2	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/-3	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/-4	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@2/-5	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/-6	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/.-	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/.1	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/.2	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/.4	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/.5	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@2/.6	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@21-0	.*./3*61.*..	BIB@Q 14-RC	/-+--" /2S
@21-1	.*.-/*//5*--	@BO>JF@ 14-MC	.-+--" 2--S
@21-2	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@21-3	.*..2*1.3*..	@BO>JF@ @EFM -+--.RC	2+--" /2S
@21-4	.*./3*61.*..	BIB@Q 14-RC	/-+--" /2S
@21-6	.*./3*635*..	BIB@Q .--RC	/-+--" 2-S
@21.-	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@21..	.*.04*1-.*..	JVI>O -+//RC	2+--" .--S
@21./	.*.-3*//-*--	JVI>O -+.RC	.-+--" .--S
@21.0	.*.0-*452*..	JVI>O -+14RC	2+--" .--S
@3/--	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/-0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/-3	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S
@3/-5	.*./3*434*..	BIB@Q .---RC	/-+--" .3S
@3/-6	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S
@3/.4	.*./3*434*..	BIB@Q .---RC	/-+--" .3S
@3//0	.*.03*164*5.	CFIJ -+.RC	2+--" 2-S
@3//3	.*./5*61/*0.	BIB@Q .---RC	/-" 3+0S
@3//6	.*./3*602*..	BIB@Q 14-RC	/-+--" .3S
@3/01	.*.03*164*5.	CFIJ -+.RC	2+--" 2-S
@3/02	.*./5*22-*..	BIB@Q //--RC	/-+--" 2-S
@3/03	.*./5*61/*0.	BIB@Q .---RC	/-" 3+0S
@3/04	.*./3*434*..	BIB@Q .---RC	/-+--" .3S
@3/05	.*.03*164*5.	CFIJ -+.RC	2+--" 2-S
@3/06	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S
@3/1-	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/1.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/1/	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S
@3/10	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S
@3/11	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/12	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/13	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S
@3/14	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S
@3/15	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/16	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/2-	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
@3/2.	.*.-1*332*..	BIB@Q .--RC	/-+--" /2S
@3/2/	.*./3*630*..	BIB@Q 1+4RC	/-+--" 2-S
@3/20	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@3/21	.*.04*041*..	JVI>0 -+-14RC	2+--" 2-S
@3/22	.*./3*602*..	BIB@Q 14-RC	/-+--" .3S
@3/23	.*./3*614*..	BIB@Q 14RC	/-+--" 02S

9 @LKKB@QLO ;

@K---/	' .*231*2-4*..	MIRD) @LKKB@QLO 1M
@K/0--	' .*231*2.-*..	MIRD) @LKKB@QLO 4M
@K/0-.	' .*231*2-6*..	MIRD) @LKKB@QLO 3M
@K/0-/	' .*5.3*646*2.	MIRD) @LKKB@QLO 5M
@K/1--	' .*5.3*641*2.	MIRD) @LKKB@QLO 0M
@K/2-.	' .*231*2-4*..	MIRD) @LKKB@QLO 1M
@K0---	' .*231*2.-*..	MIRD) @LKKB@QLO 4M
@K0--.	.*36.*440*..	MIRD %JF@OL @LKKB@QLO& ..M
@K0--/	' .*5.4*..2*..	@LKKB@QLO) ?L>OA QL ?L>OA 02M
@K0--1	' .*5.3*641*2.	MIRD) @LKKB@QLO 0M
@K0--5	.*36.*442*..	MIRD %JF@OL @LKKB@QLO& .0M
@K2/-4	' .*5.5*-01*..	AFK @LKKB@QLO MIRD 63M
@K2/-6	' .*231*2/-*..	MIRD) @LKKB@QLO 2M
@K3/--	' .*5.3*644*2.	MIRD) @LKKB@QLO 3M
@K3/-.	' .*231*2.-*..	MIRD) @LKKB@QLO 4M
@K3/-/	' .*231*2.-*..	MIRD) @LKKB@QLO 4M
@K3/-0	.*362*6.2*..	Q>? %@LKQ>@Q&
@K36--	' .*231*2.-*..	MIRD) @LKKB@QLO 4M

9 AFLAB ;

A/--/	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A//--	5*4.6*6/6*.2	AFLAB EWP6+.K?/
A//-.	5*4.6*6/6*.2	AFLAB EWP6+.K?/
A//-/	5*4.6*-2-*05	AFLAB J.J>.2/TH*Q.
A/2--	5*4.6*-2-*05	AFLAB J.J>.2/TH*Q.
A2.--	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2.-0	5*4.6*..-*53	AFLAB OA06BP?
A2.-1	5*4.6*643*66	AFLAB AQW2+.?
A2/--	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/-.	5*4.6*-5.*65	AFLAB JJ0W3S5Q.
A2/-/	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/-0	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/-1	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/-2	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/-3	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/-4	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/-5	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/-6	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/.-	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/..	5*4.6*-5.*64	AFLAB JJAI6.1Q.
A2/./	5*4.6*-5.*64	AFLAB JJAI6.1Q.

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
A21-1	5*4.6*..-*1.	AFLAB OA.2BP?/	
A21-2	5*4.6*6-5*-0	AFLAB DM-5A	
A3/-.	5*4.6*-//*64	AFLAB A/P1JC	
A3/-0	5*4.6*-30*4-	AFLAB A.KI/-R	
A3/-1	5*4.6*-30*4-	AFLAB A.KI/-R	
A3/-2	5*4.6*-2-*05	AFLAB J.J>.2/TH*Q.	
A3/-3	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A3/-4	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A3/-5	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A3/-6	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A3/.-	5*4.6*..-*1.	AFLAB OA.2BP?/	
A3/..	5*4.6*-5-*26	AFLAB BH.6*S-	
A3/.0	5*4.6*-//*64	AFLAB A/P1JC	
A3/.1	5*4.6*-23*51	AFLAB RAW*QB*.4*4+2?	

9 CBOOFQB ?B>A ;

C?/1--	.*202*0-0*--	IB>A) GRJMBO %2+-JJ&
C?/1-.	.*202*0-0*--	IB>A) GRJMBO %2+-JJ&
C?3/-.	.*202*0-0*--	IB>A) GRJMBO %2+-JJ&
C?3/-1	.*202*0-0*--	IB>A) GRJMBO %2+-JJ&

9 F@ ;

F@/---	3*4-.*-0.*..	F@ JPM01..D*N>*?..
F@//--	5*426*.--*63	F@ RM@1225D/
F@/0--	5*426*243*43	F@ QA>/5//A-.0QO
F@/1--	5*426*211*/2	F@ QA>415/
F@/2--	3*4-1*5-4*-.	F@ QA>4/36
F@2.-/	5*426*0/2*15	F@ @>---2>A
F@2.-1	5*426*5-0*1/	F@ I>32--*C>
F@21--	5*426*363*4.	F@ PQS6046>
F@3/--	5*426*315*/-	F@ I45-2@S,IPV
F@3/-/	5*426*31-*.6	F@ MN.@D/-0/CW
F@3/-1	5*426*315*.6	F@ I45-6@S,IPV
F@3/-4	5*426*31-*.6	F@ MN.@D/-0/CW
F@3/.-	5*426*112*26	F@ ?>-00Q
F@3/..	3*4-.*515*-.	F@ HC/2?AQ
F@3/./	5*426*141*-6	F@ PF*5-2-P*IC..-.

9 PL@HBQ ;

G//--	.*451*30/*..	G>@H) MFK /M

9 @LFI ;

I..--	.*1.1*43-*/.	CBOOFQB	-RE
I..-.	.*1.1*43-*/.	CBOOFQB	-RE
I..-/	.*1-5*3.2*0.	FKAR@QLO	.--RE
I..-0	.*1-5*3-0*0.	FKAR@QLO	.-RE
I..-1	.*1./*646*/.	FKAR@QLO	.RE
I.0--	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I.0-.	.*1-5*3-/*0.	FKAR@QLO	5+/RE
I/---	.*1.1*6/5*/.	FKAR@QLO	.RE

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
I/--.	.*1.1*6/5*/.	FKAR@QLO	.RE
I/-..	.*1.1*6/5*/.	FKAR@QLO	.RE
I/1--	.*1-3*644*/.	FKAR@QLO	.--RE
I/1-.	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I/1-/	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I/2--	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I/2-.	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I21--	.*1./*2/2*0.	FKAR@QLO	.-RE
I21-.	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I21-/	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I3/-0	.*1.6*410*./	FKAR@QLO	.--RE
I3/-4	.*1./*2/2*0.	FKAR@QLO	.-RE
I3/.-	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I3/..	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I3/.0	.*1./*206*..	FKAR@QLO	.2-RE
I3/.5	.*1.6*410*./	FKAR@QLO	.--RE
I3/.6	.*1-3*64.*..	FKAR@QLO	.-RE

9 MOLQB@QLO JLARIB ;

MP/--- ¸	.*5-.*216*/.	F@ IFKH	1> -S
MP/--. ¸	.*5-.*216*/.	F@ IFKH	1> -S

9 QO>KPFPQLO ;

N-.--	5*4/6*-/5*/5	QO>KPFPQLO /PH/-03%QB52I&	
N-/--	5*4/6*-/5*/5	QO>KPFPQLO /PH/-03%QB52I&	
N-/-.	5*4/6*-/5*/5	QO>KPFPQLO /PH/-03%QB52I&	
N..--	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N.0--	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N.0-.	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N/---	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N//--	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N//-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N//-/	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N/0--	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N/0-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N/0-/	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N/1--	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N/1-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N/2--	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N/2-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N/2-/	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N/2-0	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N/2-1	5*4/6*-/4*05	QO>KPFPQLO AQ>.11BH>*Q.13	
N2.--	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N2.-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N2/--	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N2/-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N2/-/	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N2/-0	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
N2/-1	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N2/-2	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N2/-3	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N2/-4	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N2/-5	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N2/-6	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N2/.-	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N2/..	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N21-1	5*4/6*6/3*43	QO>KPFPQLO FOC3/-	
N3/-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N3/-/	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N3/-0	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N3/-1	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N3/-2	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
N3/-3	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N3/-4	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N3/-5	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N3/-6	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	

9 OBPFPQLO ;

G00--.	.*/.3*531*..	PELOQ @EFM	-		
G00--0	.*/.3*531*..	PELOQ @EFM	-		
G00--1	.*/.3*531*..	PELOQ @EFM	-		
G00--3	.*/.3*531*..	PELOQ @EFM	-		
G00-.-	.*/.3*531*..	PELOQ @EFM	-		
G03--.	.*/.3*531*..	PELOQ @EFM	-		
G03--/	.*/.3*531*..	PELOQ @EFM	-		
G03--0	.*/.3*531*..	PELOQ @EFM	-		
G03--1	.*/.3*531*..	PELOQ @EFM	-		
G03--2	.*/.3*531*..	PELOQ @EFM	-		
G03--3	.*/.3*531*..	PELOQ @EFM	-		
G03--4	.*/.3*531*..	PELOQ @EFM	-		
G03--5	.*/.3*531*..	PELOQ @EFM	-		
G03--6	.*/.3*531*..	PELOQ @EFM	-		
G03-.0	.*/.3*531*..	PELOQ @EFM	-		
G03-/0	.*/.3*531*..	PELOQ @EFM	-		
G03-/2	.*/.3*531*..	PELOQ @EFM	-		
G03-/4	.*/.3*531*..	PELOQ @EFM	-		
G05--/	.*/.3*531*..	PELOQ @EFM	-		
G05--0	.*/.3*531*..	PELOQ @EFM	-		
0---.	.*/.3*531*..	PELOQ @EFM	-		
0-.--	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0-.-/	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0-.-0	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0-/--	.*/.3*5/4*..	JBQ>I @EFM	0+0H	2"	.,.-T
0-/-.	.*/.3*5/4*..	JBQ>I @EFM	0+0H	2"	.,.-T
0-/-/	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0-/-1	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0-/-2	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0-/-4	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
0..--	.*/.3*531*..	PELOQ @EFM	-		
0..-/	.*/.3*531*..	PELOQ @EFM	-		
0..-0	.*/.3*531*..	PELOQ @EFM	-		
0..-2	.*/.3*531*..	PELOQ @EFM	-		
0..-3	.*/.3*531*..	PELOQ @EFM	-		
0..-5	.*/.3*531*..	PELOQ @EFM	-		
0...-	.*/.3*503*..	JBQ>I @EFM	.5H	2"	.,.-T
0....	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0.0--	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0.0-0	.*/.3*5-2*..	JBQ>I @EFM	14	2"	.,.-T
0.0-1	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0/---	.*1.1*43-*/.	CBOOFQB	-RE		
0/--.	.*1.1*43-*/.	CBOOFQB	-RE		
0/--/	.*/.3*512*..	JBQ>I @EFM	.--H	2"	.,.-T
0/--0	.*/.3*531*..	PELOQ @EFM	-		
0/--1	.*/.3*531*..	PELOQ @EFM	-		
0/--2	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0/--3	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0/--4	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0/--5	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0/-//	.*/.3*512*..	JBQ>I @EFM	.--H	2"	.,.-T
0/-/2	.*/.3*531*..	PELOQ @EFM	-		
0/-/3	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0/-/6	.*/.3*531*..	PELOQ @EFM	-		
0/-0-	.*/.3*531*..	PELOQ @EFM	-		
0//--	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
0//-.	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0//-/	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
0//-0	.*/.3*506*..	JBQ>I @EFM	00H	2"	.,.-T
0//-1	.*/.3*506*..	JBQ>I @EFM	00H	2"	.,.-T
0//-2	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0//-3	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0//-4	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0//-5	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0//-6	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0//..	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0//.0	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0//.1	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
0//.3	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0//.4	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
0//.5	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0///-	.*/.3*531*..	PELOQ @EFM	-		
0///.	.*/.3*531*..	PELOQ @EFM	-		
0/0--	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0/0-.	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0/0-/	.*/.3*5-2*..	JBQ>I @EFM	14	2"	.,.-T
0/0-0	.*/.3*5-2*..	JBQ>I @EFM	14	2"	.,.-T
0/0-1	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0/0-2	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0/0-3	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
0/0-4	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
0/0-5	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0/0-6	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0/0.-	.*/16*056*..	@>O?LK	1+4	2"	.,1T
0/0..	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0/0./	.*/16*056*..	@>O?LK	1+4	2"	.,1T
0/0.0	.*/.3*5.0*..	JBQ>I @EFM	//-	2"	.,.-T
0/0.1	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0/0.2	.*/.3*5.0*..	JBQ>I @EFM	//-	2"	.,.-T
0/0.3	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0/0.4	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0/1--	.*/16*1//*..	@>O?LK	/+4H	2"	.,1T
0/1-.	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
0/1-/	.*/.5*5/4*..	JBQ>I @EFM	.2-	-+2"	.,.-T
0/1-0	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0/1-1	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0/1-2	.*/.3*505*..	JBQ>I @EFM	/4H	2"	.,.-T
0/1-3	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
0/1-4	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0/1-6	.*/.3*531*..	PELOQ @EFM	-		
0/1.-	.*/.3*531*..	PELOQ @EFM	-		
0/2--	.*/.3*-56*6.	OBP*@EFM	14H	2"	.,.-T
0/2-.	.*/.3*-16*..	OBP*@EFM	.H	2"	.,.-T
0/2-/	.*/.3*-16*..	OBP*@EFM	.H	2"	.,.-T
0/2-0	.*/.3*-16*..	OBP*@EFM	.H	2"	.,.-T
0/2-1	.*/.3*-56*6.	OBP*@EFM	14H	2"	.,.-T
0/2-2	.*/.3*-16*..	OBP*@EFM	.H	2"	.,.-T
0/2-3	.*/.3*-46*--	OBP*@EFM	.5H	2"	.,.-T
0/2-4	.*/.3*-46*--	OBP*@EFM	.5H	2"	.,.-T
0/2-5	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0/2-6	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
0/2..	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
0/2./	.*/.3*502*..	JBQ>I @EFM	.2H	2"	.,.-T
0/2.1	.*/.3*5/3*..	JBQ>I @EFM	/+4H	2"	.,.-T
0/2.2	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0/2.3	.*/.3*512*..	JBQ>I @EFM	.--H	2"	.,.-T
0/2.4	.*/.3*531*..	PELOQ @EFM	-		
0/2.5	.*/.3*-5.*--	OBP*@EFM	//H	2"	.,.-T
0/2.6	.*/.3*512*..	JBQ>I @EFM	.--H	2"	.,.-T
0/2/-	.*/.3*512*..	JBQ>I @EFM	.--H	2"	.,.-T
0/2/.	.*/10*5/3*/.	JBQ>I LUFAB	1+4	2"	.T
0/2//	.*/10*5/3*/.	JBQ>I LUFAB	1+4	2"	.T
0/2/0	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
0/2/1	.*/.3*531*..	PELOQ @EFM	-		
0/2/2	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0/2/3	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
02.-/	.*/.5*546*..	JBQ>I @EFM	//H	-+2"	.,.-T
02.-0	.*/.5*500*..	JBQ>I @EFM	/4-	-+2"	.,.-T
02.-4	.*/.5*546*..	JBQ>I @EFM	//H	-+2"	.,.-T
02...	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
02../	.*/.3*502*..	JBQ>I @EFM	.2H	2"	.,.-T
02..5	.*/16*1..*..	@>0?LK	00-	2"	.,1T
02..6	.*/.3*511*..	JBQ>I @EFM	5/H	2"	.,.-T
02.//	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
02./2	.*/.3*503*..	JBQ>I @EFM	.5H	2"	.,.-T
02./3	.*/16*1-3*..	@>0?LK	./-	2"	.,1T
02./4	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
02.1.	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02.10	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02.11	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
02.12	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
02.13	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
02.15	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
02.16	.*/.5*500*..	JBQ>I @EFM	/4-	-+2"	.,.-T
02.2-	.*/16*1.1*..	@>0?LK	23-	2"	.,1T
02.2.	.*/16*121*..	@>0?LK	0+6	2"	.,1T
02.2/	.*/16*1.0*..	@>0?LK	14-	2"	.,1T
02.20	.*/16*060*..	@>0?LK	.-	2"	.,1T
02.21	.*/.3*520*..	JBQ>I @EFM	14-H	2"	.,.-T
02.22	.*/16*1/.*..	@>0?LK	/+/H	2"	.,1T
02.23	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
02.24	.*/.5*534*..	JBQ>I @EFM	3+5H	-+2"	.,.-T
02.25	.*/.3*510*..	JBQ>I @EFM	35H	2"	.,.-T
02/-.	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
02/-0	.*/.3*531*..	PELOQ @EFM	-		
02/-1	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/-2	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/-3	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/-4	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/-6	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/.-	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/./	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/.0	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/.1	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/.2	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/.3	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/.4	.*/.3*5/0*..	JBQ>I @EFM	.+2H	2"	.,.-T
02/.5	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02/.6	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02//-	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02//.	.*/.3*5/0*..	JBQ>I @EFM	.+2H	2"	.,.-T
02///	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02//0	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02//1	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02//2	.*/.3*5/0*..	JBQ>I @EFM	.+2H	2"	.,.-T
02//3	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02//4	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02//5	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02//6	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/0-	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
02/0.	.*/.3*5/0*..	JBQ>I @EFM	.+2H	2"	.,.-T
02/0/	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02/00	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/01	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/02	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/03	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/04	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/06	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02/1-	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/1.	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02/1/	.*/.3*5/3*..	JBQ>I @EFM	/+4H	2"	.,.-T
02/10	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/11	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
02/12	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/13	.*/.5*534*..	JBQ>I @EFM	3+5H	-+2"	.,.-T
02/14	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/15	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/16	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
02/2-	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/2.	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/2/	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
02/20	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/21	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
02/22	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02/23	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
021-5	.*/.3*512*..	JBQ>I @EFM	.--H	2"	.,.-T
021-6	.*/.5*530*..	JBQ>I @EFM	1+4H	-+2"	.,.-T
021.-	.*/.5*526*..	JBQ>I @EFM	0+0H	-+2"	.,.-T
021..	.*/.3*5/4*..	JBQ>I @EFM	0+0H	2"	.,.-T
021.0	.*/.5*530*..	JBQ>I @EFM	1+4H	-+2"	.,.-T
021.1	.*/16*050*..	@>0?LK	.+2	2"	.,1T
021.2	.*/16*056*..	@>0?LK	1+4	2"	.,1T
021.3	.*/10*235*/.	JBQ>I LUFAB	//-	2"	/T
021.4	.*/.5*526*..	JBQ>I @EFM	0+0H	-+2"	.,.-T
021/-	.*/.1*465*/.	JBQ>I	.+5	."	.,/T
021/.	.*/.1*465*/.	JBQ>I	.+5	."	.,/T
03/-0	.*/.5*526*..	JBQ>I @EFM	0+0H	-+2"	.,.-T
03/-3	.*/.5*514*..	JBQ>I @EFM	.H	-+2"	.,.-T
03/-6	.*/.3*531*..	PELOQ @EFM	-		
03/..	.*/.5*53-*..	JBQ>I @EFM	0+3H	-+2"	.,.-T
03/.0	.*202*0-0*--	IB>A) GRJMBO %2+-JJ&			
03/.1	.*/.3*531*..	PELOQ @EFM	-		
03/.2	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
03/.3	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
03/.4	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
03/.5	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
03/.6	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
03//-	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
03//.	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
03///	.*/.3*531*..	PELOQ @EFM	-		

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

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OBC+KL+	M>OQ+KL	ABP@OFMQFLK		OBJ>OH
03//0	.*/.3*513*..	JBQ>I @EFM	./-H 2"	.,.-T
03//1	.*/.5*544*..	JBQ>I @EFM	.5H -+2"	.,.-T
03//2	.*/.5*54.*..	JBQ>I @EFM	.-H -+2"	.,.-T
03//3	.*/.3*500*..	JBQ>I @EFM	.-H 2"	.,.-T
03//4	.*/.5*566*..	JBQ>I @EFM	.2-H -+2"	.,.3T
03//5	.*/.3*500*..	JBQ>I @EFM	.-H 2"	.,.-T
03//6	.*/.3*512*..	JBQ>I @EFM	.--H 2"	.,.-T
03/0-	.*/.3*512*..	JBQ>I @EFM	.--H 2"	.,.-T
03/0.	.*/.5*546*..	JBQ>I @EFM	//H -+2"	.,.-T
03/0/	.*/.3*531*..	PELOQ @EFM	-	
03/05	.*/.3*531*..	PELOQ @EFM	-	
03/11	.*/.5*514*..	JBQ>I @EFM	.H -+2"	.,.-T
03/13	.*/.5*506*..	JBQ>I @EFM	14- -+2"	.,.-T
03/14	.*/.3*531*..	PELOQ @EFM	-	
03/15	.*/.3*51.*..	JBQ>I @EFM	14H 2"	.,.-T
03/16	.*/.3*51.*..	JBQ>I @EFM	14H 2"	.,.-T
03/2-	.*/.3*51.*..	JBQ>I @EFM	14H 2"	.,.-T
05--2	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05--4	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05--5	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05--6	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05-.-	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05-..	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05-./	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05-.0	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05-.1	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05-.2	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05-.3	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T
05-.4	.*/.3*5-6*..	JBQ>I @EFM	.-- 2"	.,.-T

9 @OVPQ>I ;

U/--- .*43-*3/5*.. SF?O>QLO) @OVPQ>I

> ? l ^oa S^of^kq M^oqp HS/5CN53?) HS*0/CN53?

9 QRKBO ;

QR..-- 5*265*202*/- COLKQBKA ?QC*BC1..

> ? l ^oa S^of^kq M^oqp HS/5CN53B) HS*0/CN53B,H

9 QRKBO ;

QR..-- 5*265*200*.- COLKQBKA ?QC*B@1..

> ? l ^oa S^of^kq M^oqp HS*0/CN53R

9 QRKBO ;

QR..-- 5*265*2/6*.- COLKQBKA ?QC*BR3..

OBC+KL+	M>OQ+KL	ABP@OFMQFLK		OBJ>OH

' >*.0-/*630*> D ? l ^oa @ l j mibqb

1*05/*521*-. P@OBT %J0U5&) M) PT %(&

9 @>M>@FQLO ;

@3--.	¸	.*.32*2/5*..	JVI>O	-+.RC	.- /42S
@3--/	¸	.*.32*2/5*..	JVI>O	-+.RC	.- /42S
@3--0	¸	.*..6*6--*2.	@BO>JF@	//--MC	/-+--" /2-S
@3--1	¸	.*..6*6--*2.	@BO>JF@	//--MC	/-+--" /2-S
@3--2		.*./3*632*6.	BIB@Q	//RC	/-+--" 2-S
@3--3		.*..4*420*..	BIB@Q%?IL@H&	14-RC	/-+--" 12-S
@3--4		.*./3*631*..	BIB@Q	.-RC	/-+--" 2-S
@3--5		.*./3*630*..	BIB@Q	1+4RC	/-+--" 2-S
@3-.-		.*.03*164*5.	CFIJ	-+.RC	2+--" 2-S
@3-..		.*.3/*631*..	@BO>JF@ @EFM	-+--.RC	.-+--" 2-S
@3-./	¸	.*.-1*24.*6.	@BO>JF@	-+--.2RC	.-+--" /HS
@3-.0	¸	.*.-1*24.*6.	@BO>JF@	-+--.2RC	.-+--" /HS
@3-.2		.*..2*006*..	@BO>JF@ @EFM	-+.RC	.-+--" 2-S
@3-.3	¸	.*.-1*24.*6.	@BO>JF@	-+--.2RC	.-+--" /HS
@3-.4	¸	.*.-1*24.*6.	@BO>JF@	-+--.2RC	.-+--" /HS
@3-.5		.*./3*616*..	BIB@Q	//-RC	/-+--" 02S
@3-.6		.*.3/*635*..	@BO>JF@ @EFM	-+--14RC	.-+--" 2-S
@3-/-		.*.--*0..*..	CFIJ	//---MC	0" 5--S
@3-/.		.*.31*3/2*..	@BO>JF@	35-MC	.-+--" 2--S
@3-//		.*./3*630*..	BIB@Q	1+4RC	/-+--" 2-S
@3-/0		.*..-*3/3*..	BIB@Q	00-RC	/-+--" .3-S
@3-/5		.*./5*215*..	BIB@Q	14--RC	/-+--" /2S
@3-/6		.*./3*606*..	BIB@Q	.----RC	/-+--" .3S
@3-0-		.*./3*611*..	BIB@Q	00--RC	/-+--" /2S
@3-0.		.*./3*611*..	BIB@Q	00--RC	/-+--" /2S
@3-0/	¸	.*..0*6/4*..	@BO>JF@	-+-.RC	/2-S
@3-00		.*.3/*631*..	@BO>JF@ @EFM	-+--.RC	.-+--" 2-S
@3-01		.*./3*616*..	BIB@Q	//-RC	/-+--" 02S
@3-02		.*.03*164*5.	CFIJ	-+.RC	2+--" 2-S
@3-03		.*.03*146*..	CFIJ	-+--.RC	2+--" .--S
@3-04		.*./3*614*..	BIB@Q	14RC	/-+--" 02S
@3-05		.*.31*3/2*..	@BO>JF@	35-MC	.-+--" 2--S
@3-06		.*./2*56.*..	@BO>JF@ @EFM	-+14RC	.-+--" .-S
@3-1-		.*./4*4.2*6.	@BO>JF@ @EFM	-+//RC	.-" .3S
@3-1/		.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--" /2S
@3-10		.*./2*56.*..	@BO>JF@ @EFM	-+14RC	.-+--" .-S
@3-12		.*..2*006*..	@BO>JF@ @EFM	-+.RC	.-+--" 2-S
@3.-0		.*..6*61-*2.	BIB@Q	14--RC	/-+--" 2-S

9 @LKKB@QLO ;

@K3--.	¸ '	.*36.*/6.*..	MFK) @LKKB@QLO %M@ ?L>OA& 2M	
@K3--/	¸ '	.*2-5*453*--	MFK) @LKKB@QLO %2JJ MFQ@E& /M	
@K3--0	¸ '	.*2-5*432*--	MFK) @LKKB@QLO %2JJ MFQ@E& 0M	
@K3--1	¸ '	.*36.*63-*..	MFK) @LKKB@QLO %M@ ?L>OA& 0M	
@K3--2	'	.*5.4*-04*3.	MIRD) @LKKB@QLO 3M	

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

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OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
@K3--3	' .*231*2.-*..	MIRD) @LKKB@QLO 4M	
@K3--4	.*5.4*6.4*..	MFK) @LKKB@QLO 0M	
@K3--5	' .*5.3*644*2.	MIRD) @LKKB@QLO 3M	
@K3-./	' .*231*2.-*..	MIRD) @LKKB@QLO 4M	
	9 AFLAB ;		
A3--.	3*2--*-34*-.	AFLAB DPF?13-I,12	
A3--/	5*4.6*65/*/3	AFLAB JQWG*00?	
A3--1	5*4.6*-50*61	AFLAB CRC1--2	
A3--3	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A3--4	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A3--5	3*2--*.42*-.	AFLAB .B0*Q?	
A3--6	5*4.6*..-*1.	AFLAB 0A.2BP?/	
A3-./	5*4.6*-2/*6-	AFLAB A.KI1-*Q>/	
A3-.0	3*2--*.42*-.	AFLAB .B0*Q?	
A3-.3	5*4.6*-3-*55	AFLAB A1P?P3	
A3-.4	5*4.6*-2/*6-	AFLAB A.KI1-*Q>/	
A3-0.	5*4.6*-5-*26	AFLAB BH.6*S-	
A3-0/	5*4.6*-5-*26	AFLAB BH.6*S-	
A3-00	5*4.6*0./*6/	AFLAB 0H.1S.	
A3-01	5*4.6*0./*6/	AFLAB 0H.1S.	
A3-03	5*4.6*-5-*26	AFLAB BH.6*S-	
A3.-/	5*4.6*2..*1-	AFLAB P.S?1-	
A3.-1	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A3.-2	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
	9 CB0OFQB ?B>A ;		
C?3--/	.*1.-*064*/.	CB0OFQB .+.RE	
C?3--0	.*1.-*064*/.	CB0OFQB .+.RE	
	9 F@ ;		
F@3--.	5*426*34-*0-	F@ J@W0--.A	
F@3--0	5*416*-.3*.6	F@ PB.02K*IC1	
	9 @LFI ;		
I3--.	.*1-3*330*/.	FKAR@QLO 14RE	
I3--/	.*1./*2/.*0.	FKAR@QLO 1+4RE	
I3--0	.*1./*2/.*0.	FKAR@QLO 1+4RE	
I3--1	.*202*0-0*--	IB>A) GRJMB0 %2+-JJ&	
I3--2	.*202*0-0*--	IB>A) GRJMB0 %2+-JJ&	
I3--3	.*1-3*326*..	FKAR@QLO .-RE	
I3--4	.*1./*2/2*0.	FKAR@QLO .-RE	
I3--5	.*1./*200*/.	FKAR@QLO 14RE	
I3--6	.*1.1*.5.*..	FKAR@QLO 1+4RE	
I3-.1	.*1.1*.56*0.	FKAR@QLO .--RE	
	9 MELQL@LRMIB0 ;		
ME3--. ¸	3*3--*.54*-.	MELQL @LRMIB0 M@./0V//GLLC	

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
	9 QO>KPFPQLO ;		
N3--0	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*0PQ.	
N3--2	5*4/6*6-.*-3	QO>KPFPQLO AQ>.11BH	
N3--3	3*22-*365*-.	QO>KPFPQLO PM>-5K2-@0*B5.2/	
N3--4	3*22-*365*-.	QO>KPFPQLO PM>-5K2-@0*B5.2/	
N3-.-	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*0PQ.	
N3.-/	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*0PQ.	
	9 0BPFPQLO ;		
G03--4	.*/.3*531*..	PELOQ @EFM -	
03--0 ¸	.*/-/*600*3.	CRPF?IB -+. .-" .,/T	
03--1 ¸	.*/-2*665*..	@BJBKQBA . 2" .-T	
03--2 ¸	.*/-2*665*..	@BJBKQBA . 2" .-T	
03--4	.*/10*646*/.	JBQ>I LUFAB -+. 2" /T	
03--5	.*/10*646*/.	JBQ>I LUFAB -+. 2" /T	
03--6	.*/.5*542*..	JBQ>I @EFM .2H -+2" .,.-T	
03-.-	.*/12*145*/.	JBQ>I 14-H ." .,1T	
03-..	.*/12*161*/.	JBQ>I /+/J /" .,1T	
03-./	.*/12*161*/.	JBQ>I /+/J /" .,1T	
03-.0 ¸	.*/.5*/32*..	JBQ>I 5+/J 2" .T	
03-.1	.*/10*3/1*/.	JBQ>I LUFAB 00H 2" 0T	
03-.2	.*/..*66/*..	JBQ>I @EFM 6. -+2" .,.-T	
03-.3	.*/.3*5/.*..	JBQ>I @EFM .H 2" .,.-T	
03-.4	.*/.3*500*..	JBQ>I @EFM .-H 2" .,.-T	
03-.5	.*/3-*.0.*..	@>0?LK 14-H 2" .,/T	
03-.6	.*/3-*./6*..	@>0?LK 00-H 2" .,/T	
03-/-	.*/.3*5/-*..	JBQ>I @EFM 5/- 2" .,.-T	
03-/.	.*/10*613*/.	JBQ>I LUFAB -+/4 2" /T	
03-//	.*/.3*500*..	JBQ>I @EFM .-H 2" .,.-T	
03-/1	.*/..*65.*..	JBQ>I @EFM 00 -+2" .,.-T	
03-/6	.*/.3*500*..	JBQ>I @EFM .-H 2" .,.-T	
03-0-	.*/.3*5.4*..	JBQ>I @EFM 14- 2" .,.-T	
03-0/	.*/16*1.4*..	@>0?LK .H 2" .,1T	
03-00	.*/12*145*/.	JBQ>I 14-H ." .,1T	
03-02	.*/3-*-50*..	@>0?LK 14 2" .,/T	
03-03	.*/.3*5.4*..	JBQ>I @EFM 14- 2" .,.-T	
03-04	.*/16*1-2*..	@>0?LK .-- 2" .,1T	
03-05	.*/.5*562*..	JBQ>I @EFM .--H -+2" .,.-T	
03-06	.*/.5*562*..	JBQ>I @EFM .--H -+2" .,.-T	
03-1-	.*/.5*546*..	JBQ>I @EFM //H -+2" .,.-T	
03-12	.*/.3*5.2*..	JBQ>I @EFM 00- 2" .,.-T	
03-14	.*/.5*552*..	JBQ>I @EFM 06H -+2" .,.-T	
03-16	.*/.5*536*..	JBQ>I @EFM 5+/H -+2" .,.-T	
03-2-	.*/.5*5/0*..	JBQ>I @EFM .-- -+2" .,.-T	
03-21	.*/..*65.*..	JBQ>I @EFM 00 -+2" .,.-T	
03-24	.*/.3*5/6*..	JBQ>I @EFM 1+4H 2" .,.-T	
03.-.	.*/.3*5/.*..	JBQ>I @EFM .H 2" .,.-T	
03.-/	.*/.3*5/6*..	JBQ>I @EFM 1+4H 2" .,.-T	

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

D ?

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
03.-2	.*/.3*5/.*..	JBQ>I @EFM .H 2"	.,.-T
03.-3	.*/.3*5/6*..	JBQ>I @EFM 1+4H 2"	.,.-T
	9 OBI>V ;		
OV3--. ¸	.*422*055*..	OBI>V %>@ MLTBO&	
OV3--/ ¸	.*422*055*..	OBI>V %>@ MLTBO&	
	9 QO>KPCLOJBO ;		
Q3--. ¸	.*1/5*563*..	@LFI) IFKB CFIQBO	
Q3--/ ¸	.*110*-26*..	QO>KPCLOJBO) @LKSBOQBO %MFQ&	
Q3--0 ¸	.*1/5*563*..	@LFI) IFKB CFIQBO	
Q3.-. ¸	.*110*..1*..	QO>KPCLOJBO) PQ>KA?V	
	9 QEBOJFPQLO ;		
QE3--/ ¸	.*5-1*32-*..	QEBOJFPQLO) MLPFQFSB	
' >*.0-/*632*> ? ?l^oa @l j mibqb			
	1*-54*/-0*-.	MI>PQF@ OFSBQ	
	9 @>M>@FQLO ;		
@---2	.*.3/*6/.*..	@BO>JF@ @EFM 00MC	2+--" 2-S
@---3	.*.3/*6/.*..	@BO>JF@ @EFM 00MC	2+--" 2-S
@---4	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@---5	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@---6	.*.3/*6/0*..	@BO>JF@ @EFM 14MC	2+--" 2-S
@--..	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--.0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--.2	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--.3	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--.4	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--.5	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--/-	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@--/.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--/0	.*./3*600*..	BIB@Q .--RC	/-+--" .3S
@--/2	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--/3	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@--/5	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--/6	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--0/	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--00	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--02	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--05	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--06	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@--1.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--10	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--12	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--14	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--15	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--2.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--20	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--21	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@--22	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@--23	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--26	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--3-	.*.31*/0-*..	@BO>JF@ @EFM //-MC	2+--" 2-S
@--3.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--3/	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@--30	.*.31*/0-*..	@BO>JF@ @EFM //-MC	2+--" 2-S
@--31	.*.31*/0-*..	@BO>JF@ @EFM //-MC	2+--" 2-S
@--32	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@--33	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.-.	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@0.-/	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@0.-0	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@0.-1	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@0.-4	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@0.-5	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@0.-6	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@0..-	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@0..3	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@0..4	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
@0./.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.//	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0./0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0./1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0./4	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@0./6	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@0.0-	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.0.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.0/	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.00	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0.01	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.02	.*.3/*6.6*..	@BO>JF@ @EFM //MC	2+--" 2-S
@0.03	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.04	.*.3/*6.6*..	@BO>JF@ @EFM //MC	2+--" 2-S
@0.05	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.06	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.1-	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.1.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.1/	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0.10	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0.11	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0.12	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0.14	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0.15	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00--	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00-.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00-/	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00-0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00-1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S

OBC+KL+	M>OQ+KL	ABP@O=MQ=LK	OBJ>OH
@00-2	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00-3	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00-4	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@00-5	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00-6	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00.-	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00..	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00./	.*.3/*6.6*..	@BO>JF@ @EFM //MC	2+--" 2-S
@00.0	.*.3/*6.6*..	@BO>JF@ @EFM //MC	2+--" 2-S
@00.1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00.2	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00.3	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00.4	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00.5	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@00.6	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@00/-	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@00/.	.*..2*425*..	BIB@Q 14-RC	/-+--" .3S
@00/1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@01-/	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@01-0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@01-2	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@01-3	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@01-4	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@01-5	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@01-6	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@01.-	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@01..	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@01./	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@01.0	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@01/.	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@01//	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@01/2	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@01/4	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@01/5	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@010.	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@010/	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@0100	.*.32*.43*..	@BO>JF@ @EFM -+-14RC	.-+--" .3S
@0101	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0102	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@0103	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0514	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@22-0	.*.3/*6/4*..	@BO>JF@ @EFM .--MC	2+--" 2-S
@22-5	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@22-6	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@22.-	.*..2*1.3*..	@BO>JF@ @EFM -+--.RC	2+--" /2S
@22..	.*.3/*64-*..	@BO>JF@ @EFM -+-.RC	.-+--" /2S
@22.3	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@22.5	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@22/.	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@2225	.*./3*614*..	BIB@Q 14RC	/-+--" 02S

OBC+KL+	M>OQ+KL	ABP@O=MQ=LK	OBJ>OH
@223-	.*./4*4.2*6.	@BO>JF@ @EFM -+//RC	.-" .3S
	9 @LKKB@QLO ;		
@K0.--	.*461*/11*..	@LKKB@QLO) AFK %MIRD& 63M	
@K01--	' .*231*2/1*..	MIRD) @LKKB@QLO 6M	
@K01-/	' .*231*2.6*..	MIRD) @LKKB@QLO 1M	
	9 AFLAB ;		
A--36	5*4.6*-50*24	AFLAB RAWPQB*.40+3?	
A--4-	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A--4.	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A22--	5*4.6*-36*22	AFLAB RAWPQB*.42+3?	
A22-.	5*4.6*-50*24	AFLAB RAWPQB*.40+3?	
A22-/	3*2--*-/5*-.	AFLAB JJ0W6S.PQ.	
A22-1	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A22-2	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A22-3	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
A22..	5*4.6*-5.*64	AFLAB JJAI6.1Q.	
	9 F@ ;		
F@---.	3*4-1*631*-.	F@ PA>3--.*?./Q	
F@---/	5*426*35/*1.	F@ J/1@0/*TJK3Q%>&	
F@---0	3*4-1*0./*-.	F@ H1P31.30/C*R@42Q	
F@---2	3*5-1*-/4*-/	F@ J/4S.3-*.--H.*3V--/	
F@---3	3*4-/*0.0*-.	F@ MPQ3--FJQ	
F@---4	5*426*02/*6.	F@ MPQ6.10KI	
F@0.--	3*5-0*2/5*-.	F@ SPM61.4?@0D	
F@00--	3*4-2*./1*-.	F@ CO@61/6>*>.	
F@01--	3*4-2*./0*-.	F@ AAM00.3@*E2	
	9 @LFI ;		
I---/	.*1.1*6/5*/.	FKAR@QLO .RE	
I---0	.*1.1*6/5*/.	FKAR@QLO .RE	
I---1	.*1.1*6/5*/.	FKAR@QLO .RE	
I---3	.*1.1*6/5*/.	FKAR@QLO .RE	
I---4	.*1.1*6/5*/.	FKAR@QLO .RE	
I---5	.*1.1*6/5*/.	FKAR@QLO .RE	
I0.--	.*1.1*6/5*/.	FKAR@QLO .RE	
I0.-1	.*1.1*6/5*/.	FKAR@QLO .RE	
I0.-2	.*1.1*6/5*/.	FKAR@QLO .RE	
I0.-3	.*1.1*6/5*/.	FKAR@QLO .RE	
I0.-4	.*1.1*6/5*/.	FKAR@QLO .RE	
I00--	.*1.1*6/5*/.	FKAR@QLO .RE	
I00-.	.*1.1*6/5*/.	FKAR@QLO .RE	
I00-/	.*1.1*6/5*/.	FKAR@QLO .RE	
I00-0	.*1.-*064*/.	CBOOFQB .+.RE	
I01--	.*1.1*6/5*/.	FKAR@QLO .RE	
I01-.	.*1.1*6/5*/.	FKAR@QLO .RE	
I01-/	.*1.1*6/5*/.	FKAR@QLO .RE	
I01-0	.*1.1*6/5*/.	FKAR@QLO .RE	

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
I01-1	.*1.1*6/5*/.	FKAR@QLO	.RE
I2216	.*1.1*6/5*/.	FKAR@QLO	.RE
	9 QO>KPFPQLO ;		
N---.	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N---/	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N---0	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N---2	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N--42	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N01--	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N01-.	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N01-/	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N01-0	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N01-1	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N01-2	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N01-3	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N01-6	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N01.-	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N22--	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N22-0	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N22-2	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N22-4	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N22-6	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N22.6	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N22/.	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N222-	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
	9 OBPFPQLO ;		
GO---/	.*/.3*531*..	PELOQ @EFM	-
GO---0	.*/.3*531*..	PELOQ @EFM	-
GO---1	.*/.3*531*..	PELOQ @EFM	-
GO---5	.*/.3*531*..	PELOQ @EFM	-
GO--.-	.*/.3*531*..	PELOQ @EFM	-
GO--..	.*/.3*531*..	PELOQ @EFM	-
GO01--	.*/.3*531*..	PELOQ @EFM	-
GO01-.	.*/.3*531*..	PELOQ @EFM	-
GO01-1	.*/.3*531*..	PELOQ @EFM	-
GO01-3	.*/.3*531*..	PELOQ @EFM	-
GO01-5	.*/.3*531*..	PELOQ @EFM	-
GO01-6	.*/.3*531*..	PELOQ @EFM	-
GO225/	.*/.3*531*..	PELOQ @EFM	-
0---.	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0---/	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0---0	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0---1	.*/.3*5.3*..	JBQ>I @EFM	06- 2" .,.-T
0---2	.*/.3*5.3*..	JBQ>I @EFM	06- 2" .,.-T
0---3	.*/.3*5.3*..	JBQ>I @EFM	06- 2" .,.-T
0---4	.*/.3*5.4*..	JBQ>I @EFM	14- 2" .,.-T
0---5	.*/.3*5.4*..	JBQ>I @EFM	14- 2" .,.-T
0---6	.*/.3*5.4*..	JBQ>I @EFM	14- 2" .,.-T
0--..	.*/.3*531*..	PELOQ @EFM	-
0--.1	.*/.3*5-2*..	JBQ>I @EFM	14 2" .,.-T
0--.2	.*/.3*5-2*..	JBQ>I @EFM	14 2" .,.-T
0--.3	.*/.3*5-2*..	JBQ>I @EFM	14 2" .,.-T
0--.4	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
0--.5	.*/.3*531*..	PELOQ @EFM	-
0--.6	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--/-	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0--/.	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--//	.*/.3*531*..	PELOQ @EFM	-
0--/0	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0--/2	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--/3	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--/4	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--/5	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0--/6	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--0-	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--0.	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--0/	.*/.3*5/4*..	JBQ>I @EFM	0+0H 2" .,.-T
0--00	.*/.3*5/4*..	JBQ>I @EFM	0+0H 2" .,.-T
0--01	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
0--02	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--03	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--04	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--05	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
0--06	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--1-	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--1.	.*/.3*5.2*..	JBQ>I @EFM	00- 2" .,.-T
0--1/	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--10	.*/.3*531*..	PELOQ @EFM	-
0--11	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--12	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--13	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0--14	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--15	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--16	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--2/	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--20	.*/.3*5/6*..	JBQ>I @EFM	1+4H 2" .,.-T
0--23	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--24	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--26	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--3-	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--30	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--31	.*/.3*5-6*..	JBQ>I @EFM	.-- 2" .,.-T
0--32	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0--33	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0--34	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0--35	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
0--36	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T

?

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
0--4-	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0--4.	.*/.3*516*..	JBQ>I @EFM	//-H	2"	.,.-T
0--4/	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0--40	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0--41	.*/.3*531*..	PELOQ @EFM	-		
0--42	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0--43	.*/.3*531*..	PELOQ @EFM	-		
0--46	.*/.3*531*..	PELOQ @EFM	-		
0--5-	.*/.3*5/4*..	JBQ>I @EFM	0+0H	2"	.,.-T
0--5.	.*/.3*5/4*..	JBQ>I @EFM	0+0H	2"	.,.-T
0--5/	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0--50	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0--51	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0--52	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0--53	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0--54	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0--55	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0--56	.*.-4*5/3*..	@BO>JF@ @EFM	-+.RC	.-"	.3S
0--6/	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0--60	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0--62	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0--66	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0-./	.*/.3*531*..	PELOQ @EFM	-		
0-.-5	.*/.3*531*..	PELOQ @EFM	-		
0-.04	.*/.3*506*..	JBQ>I @EFM	00H	2"	.,.-T
00.--	.*/.3*531*..	PELOQ @EFM	-		
00.-0	.*/.3*531*..	PELOQ @EFM	-		
00.-1	.*/.3*531*..	PELOQ @EFM	-		
00.-3	.*/.3*531*..	PELOQ @EFM	-		
00.-5	.*/.3*531*..	PELOQ @EFM	-		
00.-6	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
00..-	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
00../	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
00..0	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
00..1	.*/.3*531*..	PELOQ @EFM	-		
00..2	.*/.3*531*..	PELOQ @EFM	-		
00..4	.*/.3*531*..	PELOQ @EFM	-		
00.32	.*/.3*512*..	JBQ>I @EFM	.--H	2"	.,.-T
00//-	.*/.3*531*..	PELOQ @EFM	-		
00//.	.*/.3*531*..	PELOQ @EFM	-		
00///	.*/.3*531*..	PELOQ @EFM	-		
00//0	.*/.3*531*..	PELOQ @EFM	-		
00/4-	.*/.3*531*..	PELOQ @EFM	-		
00/4.	.*/.3*531*..	PELOQ @EFM	-		
00/4/	.*/.3*531*..	PELOQ @EFM	-		
000--	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
000-.	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
000-/	.*/.3*531*..	PELOQ @EFM	-		
000-0	.*/.3*531*..	PELOQ @EFM	-		
000-3	.*/.3*531*..	PELOQ @EFM	-		

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
000-4	.*/.3*531*..	PELOQ @EFM	-		
000-5	.*/.3*531*..	PELOQ @EFM	-		
000..	.*/.3*531*..	PELOQ @EFM	-		
000.1	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
000.2	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
000.3	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
000.4	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
000.5	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
000.6	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
000/-	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
000/.	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
000/4	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
001--	.*/.3*531*..	PELOQ @EFM	-		
001-.	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
001-0	.*/.5*510*..	JBQ>I @EFM	35-	-+2"	.,.-T
001-2	.*/.3*464*..	JBQ>I @EFM	.-	2"	.,.-T
001-3	.*/.3*531*..	PELOQ @EFM	-		
001-5	.*/.3*464*..	JBQ>I @EFM	.-	2"	.,.-T
001-6	.*/.3*531*..	PELOQ @EFM	-		
001.-	.*/.3*464*..	JBQ>I @EFM	.-	2"	.,.-T
001./	.*/.3*531*..	PELOQ @EFM	-		
001.0	.*/.3*531*..	PELOQ @EFM	-		
001.1	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
001.2	.*/.5*522*..	JBQ>I @EFM	/+/H	-+2"	.,.-T
001.3	.*/.5*504*..	JBQ>I @EFM	06-	-+2"	.,.-T
001.4	.*/.5*522*..	JBQ>I @EFM	/+/H	-+2"	.,.-T
001.6	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
001/.	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
001//	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
001/0	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
001/4	.*/.3*5/-*..	JBQ>I @EFM	5/-	2"	.,.-T
001/5	.*/.3*5/-*..	JBQ>I @EFM	5/-	2"	.,.-T
001/6	.*/.3*5/-*..	JBQ>I @EFM	5/-	2"	.,.-T
00101	.*/.3*531*..	PELOQ @EFM	-		
00103	.*/.3*531*..	PELOQ @EFM	-		
00104	.*/.3*531*..	PELOQ @EFM	-		
00105	.*/.3*531*..	PELOQ @EFM	-		
00110	.*/.5*514*..	JBQ>I @EFM	.H	-+2"	.,.-T
00111	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
00112	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
00113	.*/.3*5..*..	JBQ>I @EFM	.2-	2"	.,.-T
0012-	.*/.5*504*..	JBQ>I @EFM	06-	-+2"	.,.-T
0012.	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0012/	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
0014.	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
022-.	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
022-/	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
022-0	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
022-1	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
022-2	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
022-4	.*/.3*531*..	PELOQ @EFM	-		
022-5	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
022.-	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
022..	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
022./	.*/.3*505*..	JBQ>I @EFM	/4H	2"	.,.-T
022.0	.*/.5*530*..	JBQ>I @EFM	1+4H	-+2"	.,.-T
022.3	.*/.5*50.*..	JBQ>I @EFM	//-	-+2"	.,.-T
022.4	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
022.5	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
022/.	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
022/0	.*/.5*522*..	JBQ>I @EFM	/+/H	-+2"	.,.-T
022/1	.*/.3*505*..	JBQ>I @EFM	/4H	2"	.,.-T
022/3	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
022/5	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
022/6	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0220/	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
02206	.*/.5*546*..	JBQ>I @EFM	//H	-+2"	.,.-T
0221-	.*/.5*55.*..	JBQ>I @EFM	/4H	-+2"	.,.-T
0221.	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
02210	.*/.5*534*..	JBQ>I @EFM	3+5H	-+2"	.,.-T
02211	.*/.3*50-*..	JBQ>I @EFM	2+3H	2"	.,.-T
02212	.*/.5*562*..	JBQ>I @EFM	.--H	-+2"	.,.-T
02214	.*/.5*562*..	JBQ>I @EFM	.--H	-+2"	.,.-T
02215	.*/.5*554*..	JBQ>I @EFM	14H	-+2"	.,.-T
02216	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0222-	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0222.	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
0222/	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02222	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02223	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
02224	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
02225	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
02226	.*/.3*531*..	PELOQ @EFM	-		
0223-	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
0223.	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
02233	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
02236	.*/.3*531*..	PELOQ @EFM	-		
0224-	.*/.3*531*..	PELOQ @EFM	-		
0224.	.*/.3*531*..	PELOQ @EFM	-		
0224/	.*/.3*531*..	PELOQ @EFM	-		
02240	.*/.3*531*..	PELOQ @EFM	-		
0225-	.*/.3*531*..	PELOQ @EFM	-		
0225/	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T

9 OBPFPQLO @EFM ;

0?--0-	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--0.	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--0/	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--00	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--01	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--02	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--03	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--04	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--05	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--06	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--10	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--11	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--12	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--2-	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--2.	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--2/	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--20	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--21	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?--22	.*/00*243*..	OBP) @EFM KBQTLOH .--			%0/.3&
0?0.--	.*/01*2/0*/.	OBP) @EFM KBQTLOH -			%0/.3&
0?0.-.	.*/01*2/0*/.	OBP) @EFM KBQTLOH -			%0/.3&

9 @OVPQ>I ;

U---.	.*234*.3/*--	LP@FII>QLO) @OVPQ>I			
U0.--	.*45.*613*/.	SF?O>QLO) @OVPQ>I			
U00--	.*45.*613*/.	SF?O>QLO) @OVPQ>I			
U01--	.*462*-25*/.	SF?O>QLO) @BO>JF@			

' >*.0-/*631*> A ?l^oa @l j mibqb HS*/5CN53
' >*.0-/*64.*> A ?l^oa @l j mibqb HS*0/CN53

A ?l^oa @l j j lk M^oqp

1*05/*521*-.	P@OBT %J0U5&) M) PT %(&				

9 @>M>@FQLO ;

@5.--	.*.03*164*5.	CFIJ	-+.RC	2+--"	2-S
@5.-.	.*.03*164*5.	CFIJ	-+.RC	2+--"	2-S
@5.-/	.*.03*164*5.	CFIJ	-+.RC	2+--"	2-S
@5.-0	.*..2*1.3*..	@BO>JF@ @EFM	-+--.RC	2+--"	/2S
@5.-1	.*..2*1.3*..	@BO>JF@ @EFM	-+--.RC	2+--"	/2S
@5.-2	.*./3*614*..	BIB@Q	14RC	/-+--"	02S
@5.-3	.*.31*0.2*..	@BO>JF@ @EFM	14-MC	2+--"	2-S
@5.-4	.*/.5*536*..	JBQ>I @EFM	5+/H	-+2"	.,.-T
@5.-5	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--"	/2S
@5.-6	.*./3*614*..	BIB@Q	14RC	/-+--"	02S
@5..-	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--"	/2S
@5...	.*.3/*.01*..	@BO>JF@	14-MC	.-+--"	/HS
@5../	.*.31*//4*..	@BO>JF@ @EFM	-+-//RC	.-+--"	/2S
@5..0	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--"	/2S
@5..1	.*./3*631*..	BIB@Q	.-RC	/-+--"	2-S
@5..2	.*.3/*63/*..	@BO>JF@ @EFM	14-MC	.-+--"	2-S
@5..3	.*..2*1.3*..	@BO>JF@ @EFM	-+--.RC	2+--"	/2S
@5..4	.*..2*1.3*..	@BO>JF@ @EFM	-+--.RC	2+--"	/2S
@5..5	.*.3/*64-*..	@BO>JF@ @EFM	-+-.RC	.-+--"	/2S
@5..6	.*.-4*5/3*..	@BO>JF@ @EFM	-+.RC	.-+--"	.3S

OBC+KL+	M>OQ+KL	ABP@OFMQFLK		OBJ>OH
@5./-	.*..4*33/*0.	CFIJ	-+.5RC	2" /2-S
@5./.	.*.-4*513*..	CFIJ	-+.RC	2+--" 1--S
@5.//	.*.3/*6/4*..	@BO>JF@ @EFM	.--MC	2+--" 2-S
@5./1	.*.31*//4*..	@BO>JF@ @EFM	-+-//RC	.-+--" /2S
@5./2	.*.3/*635*..	@BO>JF@ @EFM	-+--14RC	.-+--" 2-S
@5./3	.*.32*.43*..	@BO>JF@ @EFM	-+-14RC	.-+--" .3S
@5./4	.*.-4*035*..	JVI>0	-+-14RC	.-+--" /--S
@5./5	.*.3/*635*..	@BO>JF@ @EFM	-+--14RC	.-+--" 2-S
@5./6	.*.-/*-0-*--	@BO>JF@	00-MC	.-+--" 2--S
@5.0.	.*.-4*035*..	JVI>0	-+-14RC	.-+--" /--S
@5.0/	.*.31*/0-*..	@BO>JF@ @EFM	//-MC	2+--" 2-S
@5.01	.*.-/*602*--	@BO>JF@	/MC	-+/2MC 2-S
@5.02	.*./3*633*..	BIB@Q	00RC	/-+--" 2-S
@5.03	.*./3*631*..	BIB@Q	.-RC	/-+--" 2-S
@5.05	.*.-/*-0-*--	@BO>JF@	00-MC	.-+--" 2--S
@5.06	.*.3/*.0.*..	@BO>JF@	//-MC	.-+--" /HS
@5.1.	.*..4*503*..	CFIJ	35--MC	0+--" .+2HS
@5.1/	.*./4*35.*..	CFIJ	.----MC	/" .--S
@5.10	.*./2*560*..	CFIJ	35-MC	0+--" .+2HS
@5.11	.*./2*560*..	CFIJ	35-MC	0+--" .+2HS
@5.14	.*./3*614*..	BIB@Q	14RC	/-+--" 02S
@5.15	.*..4*33/*0.	CFIJ	-+.5RC	2" /2-S
@5/--	.*.32*11.*5.	BIB@Q	00RC	/-" .3-S
@5/-.	.*.-4*322*..	BIB@Q	14RC	/-+--" /2-S
@5/-/	.*.-/*//5*--	@BO>JF@	14-MC	.-+--" 2--S
@5/-0	.*.-/*//5*--	@BO>JF@	14-MC	.-+--" 2--S
@5/-1	.*.-/*//5*--	@BO>JF@	14-MC	.-+--" 2--S
@5/-2	.*./3*61.*..	BIB@Q	14-RC	/-+--" /2S
@5/-3	.*./3*61.*..	BIB@Q	14-RC	/-+--" /2S
@5/-4	.*./3*631*..	BIB@Q	.-RC	/-+--" 2-S
@5/-6	.*.31*0.2*..	@BO>JF@ @EFM	14-MC	2+--" 2-S
@5/.-	.*.3/*631*..	@BO>JF@ @EFM	-+--.RC	.-+--" 2-S
@52/6	.*.31*.23*..	@BO>JF@ @EFM	-+.RC	/2S
@520-	.*.31*/0-*..	@BO>JF@ @EFM	//-MC	2+--" 2-S
@520.	.*.31*.23*..	@BO>JF@ @EFM	-+.RC	/2S
@520/	.*./3*614*..	BIB@Q	14RC	/-+--" 02S
@5201	.*.31*.23*..	@BO>JF@ @EFM	-+.RC	/2S
@5203	.*.03*164*5.	CFIJ	-+.RC	2+--" 2-S
@5204	.*.03*014*..	CFIJ	-+--14RC	2+--" 30-S
@5205	.*.04*166*..	CFIJ	-+-.2RC	2+--" 30-S
@55-/	.*./3*63-*..	BIB@Q	.RC	/-+--" 2-S
@55-0	.*./3*63-*..	BIB@Q	.RC	/-+--" 2-S
@55-1	.*.-/*..1*--	@BO>JF@	14-MC	.-+--" 2-S
@55-2	.*.-/*..1*--	@BO>JF@	14-MC	.-+--" 2-S

9 @LKKB@QLO ;

@K5.-1	' .*231*2.-*..	MIRD) @LKKB@QLO 4M
@K5/-0	.*36.*442*..	MIRD %JF@OL @LKKB@QLO& .0M
@K5/-3	' .*231*2.-*..	MIRD) @LKKB@QLO 4M
@K5/..	' .*452*/4-*./	MFK) AV @LKKB@QLO %M@ ?L>OA&

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
@K55-2	.*36.*440*..	MIRD %JF@OL @LKKB@QLO& ..M	
@K56--	' .*231*2.-*..	MIRD) @LKKB@QLO 4M	

9 AFLAB ;

A5.--	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
A5.-.	5*4.6*..-*1.	AFLAB	OA.2BP?/
A5.-/	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.-0	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.-1	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.-2	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.-3	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.-4	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.-5	5*4.6*6/.*1-	AFLAB	JQWG*1+4@
A5./5	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.75	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.0/	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.00	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5.66	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A5/--	5*4.6*0-/*10	AFLAB	BI.W
A5/-.	5*4.6*0-/*10	AFLAB	BI.W
A5/-0	5*4.6*-52*./	AFLAB	?VS65*/--*0>P .2,./
A5/-1	5*4.6*-52*./	AFLAB	?VS65*/--*0>P .2,./
A5/-4	5*4.6*66.*00	AFLAB	.PP.00Q*44
A5/-5	5*4.6*66.*00	AFLAB	.PP.00Q*44
A52-5	5*4.6*-30*40	AFLAB	A.KI/-R*QO
A52-6	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A53..	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A53./	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A55-/	5*4.6*-5.*64	AFLAB	JJAI6.1Q.
A55-0	5*4.6*-5.*64	AFLAB	JJAI6.1Q.

9 CBOOFQB ?B>A ;

C?5.--	.*1.-*064*/.	CBOOFQB	.+.RE

9 F@ ;

F@5.--	5*426*332*..	F@ IJ060AQ	
F@5.-.	5*426*332*..	F@ IJ060AQ	
F@5.-/	5*426*305*46	F@ KGJ01-1>A*T	
F@5.-0	5*426*326*34	F@ I>3060AII	
F@52/4	5*426*4-.*-.	F@ KGJ/6-1J	

9 @LFI ;

I5.-.	.*1-3*652*..	FKAR@QLO	/+/JE
I5.-/	.*1.1*6/5*/.	FKAR@QLO	.RE
I5.-0	.*1.1*6/5*/.	FKAR@QLO	.RE
I5.-1	.*1.1*6/5*/.	FKAR@QLO	.RE
I5/-.	.*1.-*064*/.	CBOOFQB	.+.RE
I5/-/	.*1.-*064*/.	CBOOFQB	.+.RE
I5/-0	.*1.-*064*/.	CBOOFQB	.+.RE
I52-0	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&
I52-1	.*202*0-0*--	IB>A) GRJMBO	%2+-JJ&

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
I5236	.*1-3*656*/.	FKAR@QLO	.-JE
I5243	.*1-3*656*/.	FKAR@QLO	.-JE
	9 QO>KPFPQLO ;		
N5.--	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.-.	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.-/	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.-0	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.-1	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.-2	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.-3	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.-4	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.-5	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5.-6	5*4/6*-15*14	QO>KPFPQLO	/P@/355%2&*IH
N5..-	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5...	5*4/6*-15*14	QO>KPFPQLO	/P@/355%2&*IH
N5../	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5..0	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5..1	3*22-*5/4*-.	QO>KPFPQLO	PQ/0.-AEF%-1.V&
N5..2	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5..3	3*22-*5/4*-.	QO>KPFPQLO	PQ/0.-AEF%-1.V&
N5..4	5*4/6*-2-*15	QO>KPFPQLO	FOC3.1*--2
N5..5	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5..6	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5./-	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5./.	3*22-*4/.*-.	QO>KPFPQLO	/PH/346%I?P/PLKV+N&
N5.//	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5./0	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5./2	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5./3	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5./4	5*4/6*-.-*-2	QO>KPFPQLO	JP?4-6*OQ.
N5./5	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5.0/	5*4/6*1/.*.6	QO>KPFPQLO	RK//.0
N5/-.	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5/-/	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5/-0	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N5122	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N52-5	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N52-6	5*4/6*-.-*/6	QO>KPFPQLO	JPA3-.*OPQ.
N52.-	5*4/6*.1-*60	QO>KPFPQLO	/P?400*01
N52./	5*4/6*-20*00	QO>KPFPQLO	FOC3.1*-04
	9 OBPFPQLO ;		
G0513-	.*/.3*531*..	PELOQ @EFM	-
05.--	.*/.3*5.0*..	JBQ>I @EFM	//- 2" .,.-T
05.-.	.*/.3*5.0*..	JBQ>I @EFM	//- 2" .,.-T
05.-/	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05.-0	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05.-1	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05.-2	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
05.-3	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05.-4	.*/.5*524*..	JBQ>I @EFM	/+4H -+2" .,.-T
05.-5	.*/.5*524*..	JBQ>I @EFM	/+4H -+2" .,.-T
05.-6	.*/.5*546*..	JBQ>I @EFM	//H -+2" .,.-T
05..-	.*/.5*546*..	JBQ>I @EFM	//H -+2" .,.-T
05...	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05../	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05..0	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
05..1	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
05..2	.*/.3*512*..	JBQ>I @EFM	.--H 2" .,.-T
05..3	.*/.3*512*..	JBQ>I @EFM	.--H 2" .,.-T
05..4	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
05..5	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
05..6	.*/.3*500*..	JBQ>I @EFM	.-H 2" .,.-T
05./-	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05./.	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05.//	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05./0	.*/.3*51.*..	JBQ>I @EFM	14H 2" .,.-T
05./1	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
05./2	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05./3	.*/.3*5.2*..	JBQ>I @EFM	00- 2" .,.-T
05./5	.*/.5*554*..	JBQ>I @EFM	14H -+2" .,.-T
05./6	.*/.5*554*..	JBQ>I @EFM	14H -+2" .,.-T
05.0-	.*/.5*6-5*6.	JBQ>I @EFM	03-H -+2" .,.-T
05.0.	.*/.3*5.2*..	JBQ>I @EFM	00- 2" .,.-T
05.0/	.*/.3*5.2*..	JBQ>I @EFM	00- 2" .,.-T
05.00	.*/.3*5.2*..	JBQ>I @EFM	00- 2" .,.-T
05.02	.*/10*251*/.	JBQ>I LUFAB	1+4H 2" /T
05.03	.*/.5*554*..	JBQ>I @EFM	14H -+2" .,.-T
05.04	.*/.5*554*..	JBQ>I @EFM	14H -+2" .,.-T
05.05	.*/.5*554*..	JBQ>I @EFM	14H -+2" .,.-T
05.06	.*/.5*554*..	JBQ>I @EFM	14H -+2" .,.-T
05.1-	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05.1.	.*/10*251*/.	JBQ>I LUFAB	1+4H 2" /T
05.1/	.*/3-*01-*..	@>O?LK	.-H 2" .,/T
05.10	.*/.3*5/2*..	JBQ>I @EFM	/+/H 2" .,.-T
05.12	.*/.2*562*/.	JBQ>I LUFAB	0+0H 2" /T
05.13	.*/3-*01-*..	@>O?LK	.-H 2" .,/T
05.14	.*/10*616*/.	JBQ>I LUFAB	-+14 2" /T
05.15	.*/.2*55-*4.	JBQ>I LUFAB	.- 2" /T
05.16	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
05.2-	.*/.3*5/.*..	JBQ>I @EFM	.H 2" .,.-T
05.2.	.*/.3*03.*--	JBQ>I LUFAB	-+// 2" /T
05.2/	.*/.2*55-*4.	JBQ>I LUFAB	.- 2" /T
05.20	.*/14*5-4*0.	@>O?LK	.-- 2" .,1T
05.21	.*/.3*512*..	JBQ>I @EFM	.--H 2" .,.-T
05.22	.*/.3*520*..	JBQ>I @EFM	14-H 2" .,.-T
05.24	.*/.2*160*--	JBQ>I	.J ." .,1T
05.26	.*/.3*531*..	PELOQ @EFM	-

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
05.3-	.*/.3*531*..	PELOQ @EFM	-		
05.3.	.*/.5*536*..	JBQ>I @EFM	5+/H	-+2"	.,.-T
05.3/	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
05.30	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
05.32	.*/.5*556*..	JBQ>I @EFM	23H	-+2"	.,.-T
05.33	.*/14*5-4*0.	@>O?LK	.--	2"	.,1T
05.34	.*/.2*160*--	JBQ>I	.J	."	.,1T
05.35	.*/.3*5/6*..	JBQ>I @EFM	1+4H	2"	.,.-T
05.36	.*/.5*562*..	JBQ>I @EFM	.--H	-+2"	.,.-T
05.4-	.*/.3*5.2*..	JBQ>I @EFM	00-	2"	.,.-T
05.4.	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
05.41	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
05.45	.*/.5*534*..	JBQ>I @EFM	3+5H	-+2"	.,.-T
05.46	.*/.3*531*..	PELOQ @EFM	-		
05.5-	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
05.5.	.*/16*1-6*..	@>O?LK	//-	2"	.,1T
05.5/	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
05.50	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
05.6-	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
05.6.	.*/10*3//*/.	JBQ>I LUFAB	//H	2"	0T
05.63	.*/16*044*..	@>O?LK	-+14	2"	.,1T
05/-.	.*/3-*./0*..	@>O?LK	.--H	2"	.,/T
05/-0	.*/.3*531*..	PELOQ @EFM	-		
05/-1	.*/-/*64/*3.	CRPF?IB	.	2"	.,1T
05/-2	.*/.5*54.*..	JBQ>I @EFM	.-H	-+2"	.,.-T
05/-3	.*/16*110*..	@>O?LK	-+14	2"	.,1T
05/-4	.*/16*110*..	@>O?LK	-+14	2"	.,1T
05/-5	.*/.3*505*..	JBQ>I @EFM	/4H	2"	.,.-T
05/-6	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
05/.-	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
05/..	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
05/./	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
05/.2	.*/.5*554*..	JBQ>I @EFM	14H	-+2"	.,.-T
05/.3	.*/.5*554*..	JBQ>I @EFM	14H	-+2"	.,.-T
05/.4	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
05/.5	.*/16*110*..	@>O?LK	-+14	2"	.,1T
05/.6	.*/16*110*..	@>O?LK	-+14	2"	.,1T
05//-	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
05123	.*/.5*556*..	JBQ>I @EFM	23H	-+2"	.,.-T
05126	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
05205	.*/.3*516*..	JBQ>I @EFM	//-H	2"	.,.-T
05206	.*/.3*512*..	JBQ>I @EFM	.--H	2"	.,.-T
0521-	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
0521.	.*/.5*530*..	JBQ>I @EFM	1+4H	-+2"	.,.-T
0521/	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
05210	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
05211	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
05212	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0522-	.*/.5*530*..	JBQ>I @EFM	1+4H	-+2"	.,.-T
0522/	.*/.5*530*..	JBQ>I @EFM	1+4H	-+2"	.,.-T
05232	.*/.5*530*..	JBQ>I @EFM	1+4H	-+2"	.,.-T
05233	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
05234	.*/.3*500*..	JBQ>I @EFM	.-H	2"	.,.-T
05235	.*/.3*5.0*..	JBQ>I @EFM	//-	2"	.,.-T
0524.	.*/10*222*/.	JBQ>I LUFAB	.5	2"	/T
0524/	.*/.2*55/*/.	JBQ>I LUFAB	//	2"	/T
05240	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
05241	.*/.3*5/2*..	JBQ>I @EFM	/+/H	2"	.,.-T
05242	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
055-1	.*/16*1-5*..	@>O?LK	.5-	2"	.,1T
055-2	.*/16*1-5*..	@>O?LK	.5-	2"	.,1T
055-3	.*/16*1..*..	@>O?LK	00-	2"	.,1T
055-4	.*/16*1..*..	@>O?LK	00-	2"	.,1T
05535	.*/.5*536*..	JBQ>I @EFM	5+/H	-+2"	.,.-T
05552	.*/.5*562*..	JBQ>I @EFM	.--H	-+2"	.,.-T
05553	.*/.5*542*..	JBQ>I @EFM	.2H	-+2"	.,.-T

9 QO>KPCLOJBO ;

Q5.--	.*100*156*0.	QO>KPCLOJBO) CBOOFQB %EAQ&			
Q5.-.	.*100*156*0.	QO>KPCLOJBO) CBOOFQB %EAQ&			
Q5/-/	.*104*3.1*..	QO>KPCLOJBO) ELOFWLKQ>I LRQMRQ			

A ? l ^oa S^of^kq M^oqp HS*/5CN53

9 @>M>@FQLO ;

@5.0-	.*.31*/0-*..	@BO>JF@ @EFM	//-MC	2+--"	2-S
@5.1-	.*..4*31.*..	CFIJ	42--MC	0+--"	.+/HS
@5.12	.*..4*334*..	CFIJ	-+14RC	2+--"	/2-S
@5.13	.*..4*33-*/.	CFIJ	-+./RC	2+--"	/2-S

9 @LKKB@QLO ;

@K5/.1	' .*5.3*643*..	MIRD) @LKKB@QLO 2M			
@K5/.2	' .*5.3*644*2.	MIRD) @LKKB@QLO 3M			

9 OBPFPQLOP ;

05./4	.*/.5*530*..	JBQ>I @EFM	1+4H	-+2"	.,.-T
05.11	.*/10*251*/.	JBQ>I LUFAB	1+4H	2"	/T
05.23	.*/.2*152*--	JBQ>I	14-H	."	.,1T
05.43	.*/.5*534*..	JBQ>I @EFM	3+5H	-+2"	.,.-T
05.44	.*/.3*50-*..	JBQ>I @EFM	2+3H	2"	.,.-T
05///	.*/.3*014*..	JBQ>I LUFAB	-+35	2"	.T
0524-	.*/10*222*/.	JBQ>I LUFAB	.5	2"	/T

A ? l ^oa S^of^kq M^oqp HS*/5CN53

9 @>M>@FQLO ;

@5.0-	KLQ CFQQBA				
@5.1-	.*..4*503*..	CFIJ	35--MC	0+--"	.+2HS
@5.12	.*..2*2.6*..	CFIJ	-+23RC	2+--"	/2-S
@5.13	.*.-4*513*..	CFIJ	-+.RC	2+--"	1--S

OBC+KL+ M>OQ+KL ABP@OFMQFLK OBJ>OH

9 @LKKB@QLO ;

@K5/.1 ' .*231*2-5*.. MIRD) @LKKB@QLO 2M
@K5/.2 ' .*5.3*644*.. MIRD) @LKKB@QLO 3M

9 OBPFPQLOP ;

05./4 .*/.5*532*.. JBQ>I @EFM 2+3H -+2" .,.-T
05.11 .*/.2*562*/. JBQ>I LUFAB 0+0H 2" /T
05.23 .*/.2*156*-- JBQ>I 35-H ." .,1T
05.43 .*/.3*500*.. JBQ>I @EFM .-H 2" .,.-T
05.44 .*/.3*5/6*.. JBQ>I @EFM 1+4H 2" .,.-T

05/// .*/.3*01.*.. JBQ>I LUFAB -+// 2" .T
0524- .*/10*221*/. JBQ>I LUFAB .2 2" /T

' >*.1-2*3-6*> E. ?I^oa @I j mibqb

9 @>M>@FQLO ;

@/6-1 .*.3/*631*.. @BO>JF@ @EFM -+--.RC .-+--" 2-S
@/6-3 .*./3*63-*.. BIB@Q .RC /-+--" 2-S
@/6-4 .*./3*63-*.. BIB@Q .RC /-+--" 2-S
@/60. .*.3/*631*.. @BO>JF@ @EFM -+--.RC .-+--" 2-S

9 @LKKB@QLO ;

@K/6-- .*446*614*.. QBOJFK>I ?IL@H) P
@K/6.. ' .*231*2..*.. MIRD) @LKKB@QLO 5M
@K/6./ ' .*231*2.-*.. MIRD) @LKKB@QLO 4M

9 AFLAB ;

A-6-. 5*4.6*.-6*56 AFLAB OA2+3BP?/
A-6-5 5*4.6*.-6*56 AFLAB OA2+3BP?/

9 PL@HBQ ;

G/6-. .*5.4*430*.. G>@H

9 OBPFPQLO ;

0-6-. .*/.3*531*.. PELOQ @EFM -
0-6-/ .*/.3*5/6*.. JBQ>I @EFM 1+4H 2" .,.-T
0-6.. .*/.3*5/6*.. JBQ>I @EFM 1+4H 2" .,.-T
0-6./ .*/.3*531*.. PELOQ @EFM -
0-6.0 .*/.3*500*.. JBQ>I @EFM .-H 2" .,.-T

0-6.1 .*/.3*500*.. JBQ>I @EFM .-H 2" .,.-T
0/6-. .*/16*1-3*.. @>O?LK ./- 2" .,1T
0/6-/ .*/16*1-3*.. @>O?LK ./- 2" .,1T
0/6-0 .*/16*1-3*.. @>O?LK ./- 2" .,1T
0/6-1 .*/16*1-3*.. @>O?LK ./- 2" .,1T

0/6-6 .*/.3*520*.. JBQ>I @EFM 14-H 2" .,.-T
0/6.- .*/.3*520*.. JBQ>I @EFM 14-H 2" .,.-T
0/6.4 .*/.3*5/.*.. JBQ>I @EFM .H 2" .,.-T
0/6.5 .*/.3*5/.*.. JBQ>I @EFM .H 2" .,.-T

OBC+KL+ M>OQ+KL ABP@OFMQFLK OBJ>OH

9 PTFQ@E ;

P-6-- .*36/*10.*/. PTFQ@E) Q>@QFIB
P-6-. .*36/*10.*/. PTFQ@E) Q>@QFIB
P-6-/ .*36/*10.*/. PTFQ@E) Q>@QFIB
P-6-0 .*36/*10.*/. PTFQ@E) Q>@QFIB
P-6-1 .*36/*10.*/. PTFQ@E) Q>@QFIB

P-6-2 .*36/*10.*/. PTFQ@E) Q>@QFIB

' >*.1-2*3.-*> @ ?I^oa @I j mibqb

' 1*-1/*1-5*-. MFK) @L>QFKD IB>A
' 1*.-/*-//*-. MFK%0-&) TFOB
1*05/*521*-. P@OBT %J0U5&) M) PT %(&

9 @>M>@FQLO ;

@40-- .*.03*.56*-- JVI>O -+.RC .-+--" /2-S
@40-/ .*.31*.23*.. @BO>JF@ @EFM -+.RC /2S
@40-0 .*.3/*6/.*.. @BO>JF@ @EFM 00MC 2+--" 2-S
@40-3 .*..2*1.3*.. @BO>JF@ @EFM -+--.RC 2+--" /2S
@40.- .*.03*.56*-- JVI>O -+.RC .-+--" /2-S

@40./ .*.31*.23*.. @BO>JF@ @EFM -+.RC /2S
@40.0 .*.3/*6/.*.. @BO>JF@ @EFM 00MC 2+--" 2-S
@40.3 .*..2*1.3*.. @BO>JF@ @EFM -+--.RC 2+--" /2S
@40/- .*.03*.56*-- JVI>O -+.RC .-+--" /2-S
@40/. .*.-4*32/*.. BIB@Q .-RC /-+--" /2-S

@40// .*.31*.23*.. @BO>JF@ @EFM -+.RC /2S
@40/0 .*.3/*6/.*.. @BO>JF@ @EFM 00MC 2+--" 2-S
@40/3 .*..2*1.3*.. @BO>JF@ @EFM -+--.RC 2+--" /2S
@400- .*.3/*6/4*.. @BO>JF@ @EFM .--MC 2+--" 2-S
@400. .*./3*614*.. BIB@Q 14RC /-+--" 02S

@400/ .*./3*614*.. BIB@Q 14RC /-+--" 02S
@4000 .*.-4*32/*.. BIB@Q .-RC /-+--" /2-S
@4001 .*.-4*316*.. BIB@Q /+/RC /-+--" /2-S
@4002 .*..6*561*2. @BO>JF@ //--MC /-+--" /2-S
@4003 .*..2*02-*2. @BO>JF@ -+--14RC /HS

9 @LKKB@QLO ;

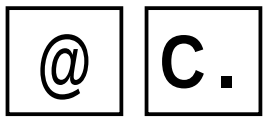
@K400- ' .*231*2-5*.. MIRD) @LKKB@QLO 2M
@K400. ' .*231*2./*.. MIRD) @LKKB@QLO 6M
@K400/ .*362*6.2*.. Q>? %@LKQ>@Q&
@K4000 .*362*6.2*.. Q>? %@LKQ>@Q&

9 AFLAB ;

A40-- 5*4.6*6-.*50 AFLAB .PP50
A40-. 5*4.6*6-.*50 AFLAB .PP50
A40-/ 5*4.6*66.*00 AFLAB .PP.00Q*44
A40-0 5*4.6*6-.*50 AFLAB .PP50
A40-1 5*4.6*-50*50 AFLAB RAWP*QB.4*.2?

A40.- 5*4.6*6-.*50 AFLAB .PP50
A40.. 5*4.6*6-.*50 AFLAB .PP50

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.



OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
A40./	5*4.6*66.*00	AFLAB .PP.00Q*44	
A40.0	5*4.6*6-.*50	AFLAB .PP50	
A40.1	5*4.6*-50*50	AFLAB RAWP*QB.4*.2?	
A40/-	5*4.6*6-.*50	AFLAB .PP50	
A40/.	5*4.6*6-.*50	AFLAB .PP50	
A40//	5*4.6*66.*00	AFLAB .PP.00Q*44	
A40/0	5*4.6*6-.*50	AFLAB .PP50	
A40/1	5*4.6*-50*50	AFLAB RAWP*QB.4*.2?	
A400-	5*4.6*.-6*35	AFLAB OA0+3BP?.	
A400.	5*4.6*6-.*50	AFLAB .PP50	
	9 F@ ;		
F@40--	3*4-1*5-3*-.	F@ QA>3..5GC	
F@40.-	3*4-1*5-3*-.	F@ QA>3..5GC	
F@40/-	3*4-1*5-3*-.	F@ QA>3..5GC	
	9 PL@HBQ ;		
G400- ¸	.*12.*211*..	PL@HBQ) @OQ	
	9 @LFI ;		
I400-	.*1.1*6/5*/.	FKAR@QLO .RE	
I400.	.*1.1*6/5*/.	FKAR@QLO .RE	
	9 MOLQB@QLO JLARIB ;		
MP400/ ¸	.*20/*304*--	F@ IFKH .> 2-S	
	9 QO>KPFPQLO ;		
N40--	5*4/6*-/2*/2	QO>KPFPQLO ?C22-	
N40-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N40-/	5*4/6*/--*.4	QO>KPFPQLO /P>.-6.*L	
N40.-	5*4/6*-/2*/2	QO>KPFPQLO ?C22-	
N40..	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N40./	5*4/6*/--*.4	QO>KPFPQLO /P>.-6.*L	
N40/-	5*4/6*-/2*/2	QO>KPFPQLO ?C22-	
N40/.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N40//	5*4/6*/--*.4	QO>KPFPQLO /P>.-6.*L	
N400-	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	
	9 OBPFPQLO ;		
GO40-0	.*/.3*531*..	PELOQ @EFM -	
GO40.0	.*/.3*531*..	PELOQ @EFM -	
GO40/0	.*/.3*531*..	PELOQ @EFM -	
040--	.*/.3*5/.*..	JBQ>I @EFM .H 2" .,.-T	
040-.	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040-/	.*/.3*5.1*..	JBQ>I @EFM /4- 2" .,.-T	
040-0	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040-1	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040-3	.*/.3*531*..	PELOQ @EFM -	
040-4	.*/14*5-4*0.	@>O?LK .-- 2" .,1T	
040-5	.*/-/*224*--	PLIFA //- /-" .,/T	
040.-	.*/.3*5/.*..	JBQ>I @EFM .H 2" .,.-T	
040..	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040./	.*/.3*5.1*..	JBQ>I @EFM /4- 2" .,.-T	
040.0	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040.1	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040.3	.*/.3*531*..	PELOQ @EFM -	
040.4	.*/14*5-4*0.	@>O?LK .-- 2" .,1T	
040.5	.*/-/*224*--	PLIFA //- /-" .,/T	
040/-	.*/.3*5/.*..	JBQ>I @EFM .H 2" .,.-T	
040/.	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040//	.*/.3*5.1*..	JBQ>I @EFM /4- 2" .,.-T	
040/0	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040/1	.*/.3*5.0*..	JBQ>I @EFM //- 2" .,.-T	
040/3	.*/.3*531*..	PELOQ @EFM -	
040/4	.*/14*5-4*0.	@>O?LK .-- 2" .,1T	
040/5	.*/-/*224*--	PLIFA //- /-" .,/T	
0400-	.*/.3*5/6*..	JBQ>I @EFM 1+4H 2" .,.-T	
0400.	.*/14*6-0*--	@>O?LK .J 2" .,1T	
04000	.*/16*1.4*..	@>O?LK .H 2" .,1T	
04001	.*/16*1.4*..	@>O?LK .H 2" .,1T	
04002	.*/14*402*..	@>O?LK 14 2" .,/T	
04003	.*/-/*216*--	PLIFA .-- /-" .,/T	
04004	.*/-/*216*--	PLIFA .-- /-" .,/T	
0401-	.*/.3*5/3*..	JBQ>I @EFM /+4H 2" .,.-T	
0402-	.*/.3*5/3*..	JBQ>I @EFM /+4H 2" .,.-T	
0403-	.*/.3*5/3*..	JBQ>I @EFM /+4H 2" .,.-T	
0403.	.*/.3*5/.*..	JBQ>I @EFM .H 2" .,.-T	
	9 OBPFPQLO S>OF>?IB ;		
OS400-	.*/1.*323*..	OBP) >AG) JBQ>I CFIJ ..-J	
' >*.1-2*3..*> C. ?l^oa @l j mibqb			
	1*/-3*//-*-.	ELIABO) IBA	
	9 @>M>@FQLO ;		
@-65/	.*.-1*332*..	BIB@Q .--RC /-+--" /2S	
@-650	.*.-/*..1*--	@BO>JF@ 14-MC .-+--" 2-S	
@-651	.*.-/*./6*--	@BO>JF@ -+-.RC .-+--" 2-S	
@31--	.*..0*6/1*..	@BO>JF@ -+--14RC /-+--" /2-S	
	9 @LKKB@QLO ;		
@K-65. '	.*231*2-4*..	MIRD) @LKKB@QLO 1M	
@K31-- ¸ '	.*25-*510*..	MFK) @LKKB@QLO %MLTBO&	
@K31-. ¸ '	.*36.*/6.*..	MFK) @LKKB@QLO %M@ ?L>OA& 2M	
@K31-0	.*362*6.2*..	Q>? %@LKQ>@Q&	
	9 AFLAB ;		
A-65.	5*4.6*.-6*56	AFLAB OA2+3BP?/	
A-650	5*4.6*-5/*./	AFLAB QIEH2.6-	

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OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
	9 CRPB ;		
C31-- ¸	.*243*/0/*./	CRPB 2>	/2-S
CE31-- ¸	.*200*4/2*..	CRPB ELIABO ->	-S
	9 F@ ;		
F@-65.	3*4-1*20/*-.	F@ OMJ4/1-*E2	
	9 OBPFPQLO ;		
0-65/	.*/14*5-4*0.	@>O?LK .--	2" .,1T
031-- ¸	.*/-/*4.6*--	PLIFA .J	.-" .,/T
	9 PTFQ@E ;		
P31-- ¸	.*24.*100*/.	PTFQ@E) MRPE %>@ MLTBO&	
	9 S>OFPQLO ;		
SA31-- ¸	.*5-1*662*..	S>OFPQLO	
' >*.1-2*3/0*> G ?l^oa @l j mibqb			
	9 @>M>@FQLO ;		
@/3-1	.*.31*//4*..	@BO>JF@ @EFM -+-//RC	.-+--" /2S
@/3-2	.*.3/*631*..	@BO>JF@ @EFM -+--.RC	.-+--" 2-S
@/3-3	.*.31*//4*..	@BO>JF@ @EFM -+-//RC	.-+--" /2S
@/3-4	.*.3/*631*..	@BO>JF@ @EFM -+--.RC	.-+--" 2-S
@/3-5	.*.32*6-5*..	@BO>JF@ @EFM .RC	.-" .-S
@/3-6	.*.32*6-5*..	@BO>JF@ @EFM .RC	.-" .-S
@/3.-	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/3..	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/3./	.*./2*504*6.	@BO>JF@ @EFM .RC	.-" 3+0S
@/3.0	.*./2*504*6.	@BO>JF@ @EFM .RC	.-" 3+0S
@/3.1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/3.2	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/3/-	.*.31*//4*..	@BO>JF@ @EFM -+-//RC	.-+--" /2S
@/3/.	.*.3/*631*..	@BO>JF@ @EFM -+--.RC	.-+--" 2-S
@/3//	.*.31*//4*..	@BO>JF@ @EFM -+-//RC	.-+--" /2S
@/3/0	.*.3/*631*..	@BO>JF@ @EFM -+--.RC	.-+--" 2-S
@/3/1	.*.32*6-5*..	@BO>JF@ @EFM .RC	.-" .-S
@/3/2	.*.32*6-5*..	@BO>JF@ @EFM .RC	.-" .-S
@/3/3	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/3/4	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/30/	.*.31*//4*..	@BO>JF@ @EFM -+-//RC	.-+--" /2S
@/300	.*.3/*631*..	@BO>JF@ @EFM -+--.RC	.-+--" 2-S
@/301	.*.31*//4*..	@BO>JF@ @EFM -+-//RC	.-+--" /2S
@/302	.*.3/*631*..	@BO>JF@ @EFM -+--.RC	.-+--" 2-S
@/303	.*.32*6-5*..	@BO>JF@ @EFM .RC	.-" .-S
@/304	.*.32*6-5*..	@BO>JF@ @EFM .RC	.-" .-S
@/305	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/306	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@/322	.*.32*6-5*..	@BO>JF@ @EFM .RC	.-" .-S
@/323	.*.32*6-5*..	@BO>JF@ @EFM .RC	.-" .-S
@/324	.*.3/*6/0*..	@BO>JF@ @EFM 14MC	2+--" 2-S
@/325	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@/326	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@/33-	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@03-5	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@03-6	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@03.-	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@03.3	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@03.4	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@03.5	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@03.6	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@03/-	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@03/.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@03//	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@03/0	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@03/1	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@03/2	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@03/3	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@03/4	.*./3*631*..	BIB@Q .-RC	/-+--" 2-S
@030.	.*.-4*5/3*..	@BO>JF@ @EFM -+.RC	.-+--" .3S
@030/	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0301	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0303	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@031.	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@031/	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0310	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0311	.*.31*.23*..	@BO>JF@ @EFM -+.RC	/2S
@0312	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0313	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0314	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0315	.*./3*614*..	BIB@Q 14RC	/-+--" 02S
@0316	.*.3/*6.2*..	@BO>JF@ @EFM .-MC	-+2-MC 2-S
	9 @LKKB@QLO ;		
@K03-- '	.*231*2/0*..	MIRD) @LKKB@QLO 5M	
@K03-.	.*362*216*..	PL@HBQ) MFK /.M	
@K03-/	.*362*216*..	PL@HBQ) MFK /.M	
@K03-0	.*362*216*..	PL@HBQ) MFK /.M	
@K03-1	.*5.4*..1*..	@LKKB@QLO) ?L>OA QL ?L>OA 02M	
	9 AFLAB ;		
A-3--	5*4.6*-36*22	AFLAB RAWPQB*.42+3?	
A/3--	5*4.6*-36*3-	AFLAB RAWPQB*.46+.?	
A/3-.	5*4.6*-36*3-	AFLAB RAWPQB*.46+.?	
A/3-/	5*4.6*-36*3-	AFLAB RAWPQB*.46+.?	
A/3-0	5*4.6*-36*3-	AFLAB RAWPQB*.46+.?	
A/3-1	5*4.6*-36*3-	AFLAB RAWPQB*.46+.?	
A/3-2	5*4.6*-36*3-	AFLAB RAWPQB*.46+.?	

```
OBC+KL+     M>OQ+KL          ABP@OFMQFLK                    OBJ>OH
A/3-3       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A/3-4       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A/3-5       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A/3-6       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A/3.-       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?

A/3..       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A03-/       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A03-3       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A03.1       5*4.6*-50*30     AFLAB RAWPQB*.4.0?
A03.2       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?

A03.3       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A03.4       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A03/.       5*4.6*-50*30     AFLAB RAWPQB*.4.0?
A03//       5*4.6*-36*22     AFLAB RAWPQB*.42+3?
A03/0       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?

A03/1       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A03/3       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A03/4       5*4.6*-50*30     AFLAB RAWPQB*.4.0?
A03/5       5*4.6*-50*30     AFLAB RAWPQB*.4.0?
A03/6       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?

A030-       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A030.       5*4.6*-36*22     AFLAB RAWPQB*.42+3?
A030/       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A0300       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?
A0301       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?

A0302       5*4.6*-36*3-     AFLAB RAWPQB*.46+.?

                  9 CBOOFQB ?B>A ;

C?03..      .*1.1*43-*/.     CBOOFQB          -RE

                  9 F@ ;

F@03--      5*42/*-63*50     F@ @U>/.16>N*QI

                  9 @LFI ;

I/3-/       .*1.1*6/5*/.     FKAR@QLO         .RE
I03..       .*1.1*6/5*/.     FKAR@QLO         .RE
I03./       .*1.1*6/5*/.     FKAR@QLO         .RE
I03.1       .*1.1*6/5*/.     FKAR@QLO         .RE

                  9 QO>KPFPQLO ;

N/3-/       5*4/6*-.-*/6     QO>KPFPQLO JPA3-.*OPQ.
N/3-0       5*4/6*-.-*/6     QO>KPFPQLO JPA3-.*OPQ.
N/3-1       5*4/6*-.-*/6     QO>KPFPQLO JPA3-.*OPQ.
N0323       5*4/6*-.-*/6     QO>KPFPQLO JPA3-.*OPQ.
N0324       5*4/6*-.-*/6     QO>KPFPQLO JPA3-.*OPQ.

N0325       5*4/6*-.-*/6     QO>KPFPQLO JPA3-.*OPQ.
```

```
OBC+KL+     M>OQ+KL          ABP@OFMQFLK                    OBJ>OH
                  9 OBPFPQLO ;

GO/3.3      .*/.3*531*..     PELOQ @EFM       -
GO/3.4      .*/.3*531*..     PELOQ @EFM       -
GO/3.5      .*/.3*531*..     PELOQ @EFM       -
GO/3/5      .*/.3*531*..     PELOQ @EFM       -
GO03..      .*/.3*531*..     PELOQ @EFM       -

O-5--       .*/.3*5-6*..     JBQ>I @EFM       .--  2"   .,.-T
O-5-.       .*/.3*5-6*..     JBQ>I @EFM       .--  2"   .,.-T
O-5-/       .*/.3*-/2*..     OBP*@EFM         .--  2"   .,.-T
O/3--       .*/.3*5.2*..     JBQ>I @EFM       00-  2"   .,.-T
O/3-.       .*/.3*-16*..     OBP*@EFM         .H   2"   .,.-T

O/3-/       .*/.3*5.2*..     JBQ>I @EFM       00-  2"   .,.-T
O/3-0       .*/.3*-16*..     OBP*@EFM         .H   2"   .,.-T
O/3-1       .*/.3*5.0*..     JBQ>I @EFM       //-  2"   .,.-T
O/3-2       .*/.3*531*..     PELOQ @EFM       -
O/3-3       .*/.3*5.0*..     JBQ>I @EFM       //-  2"   .,.-T

O/3-4       .*/.3*531*..     PELOQ @EFM       -
O/3-5       .*/.3*520*..     JBQ>I @EFM       14-H 2"   .,.-T
O/3-6       .*/.3*520*..     JBQ>I @EFM       14-H 2"   .,.-T
O/3.-       .*/.3*520*..     JBQ>I @EFM       14-H 2"   .,.-T
O/3..       .*/.3*520*..     JBQ>I @EFM       14-H 2"   .,.-T

O/3./       .*/.3*5.0*..     JBQ>I @EFM       //-  2"   .,.-T
O/3.0       .*/.3*5.0*..     JBQ>I @EFM       //-  2"   .,.-T
O/3.1       .*/.3*531*..     PELOQ @EFM       -
O/3.2       .*/.3*531*..     PELOQ @EFM       -
O/3.3       .*/.3*531*..     PELOQ @EFM       -

O/3.4       .*/.3*5/.*..     JBQ>I @EFM       .H   2"   .,.-T
O/3.5       .*/.3*531*..     PELOQ @EFM       -
O/3.6       .*/.3*5/.*..     JBQ>I @EFM       .H   2"   .,.-T
O/3/-       .*/.3*504*..     JBQ>I @EFM       //H  2"   .,.-T
O/3/.       .*/.3*504*..     JBQ>I @EFM       //H  2"   .,.-T

O/3//       .*/.3*504*..     JBQ>I @EFM       //H  2"   .,.-T
O/3/0       .*/.3*504*..     JBQ>I @EFM       //H  2"   .,.-T
O/3/1       .*/.3*5.2*..     JBQ>I @EFM       00-  2"   .,.-T
O/3/2       .*/.3*-16*..     OBP*@EFM         .H   2"   .,.-T
O/3/3       .*/.3*5.2*..     JBQ>I @EFM       00-  2"   .,.-T

O/3/4       .*/.3*-16*..     OBP*@EFM         .H   2"   .,.-T
O/3/5       .*/.3*531*..     PELOQ @EFM       -
O/30-       .*/.3*531*..     PELOQ @EFM       -
O/30/       .*/.3*520*..     JBQ>I @EFM       14-H 2"   .,.-T
O/300       .*/.3*520*..     JBQ>I @EFM       14-H 2"   .,.-T

O/301       .*/.3*520*..     JBQ>I @EFM       14-H 2"   .,.-T
O/302       .*/.3*520*..     JBQ>I @EFM       14-H 2"   .,.-T
O/303       .*/.3*5.2*..     JBQ>I @EFM       00-  2"   .,.-T
O/304       .*/.3*-16*..     OBP*@EFM         .H   2"   .,.-T
O/305       .*/.3*5.2*..     JBQ>I @EFM       00-  2"   .,.-T

O/306       .*/.3*-16*..     OBP*@EFM         .H   2"   .,.-T
O/31-       .*/.3*5.0*..     JBQ>I @EFM       //-  2"   .,.-T
O/31/       .*/.3*5.0*..     JBQ>I @EFM       //-  2"   .,.-T
```

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
0/311	.*/.3*520*..	JBQ>I @EFM	14-H	2"	.,.-T
0/312	.*/.3*520*..	JBQ>I @EFM	14-H	2"	.,.-T
0/313	.*/.3*520*..	JBQ>I @EFM	14-H	2"	.,.-T
0/314	.*/.3*520*..	JBQ>I @EFM	14-H	2"	.,.-T
0/315	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0/316	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
0/32-	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
003--	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003-.	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003-/	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003-0	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003-1	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003-2	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003-4	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003-5	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003-6	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003.-	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003..	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003./	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003.0	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003.1	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003.2	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003.3	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003.4	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003.5	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003.6	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003/.	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003//	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003/0	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003/1	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003/2	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
003/3	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003/4	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003/5	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
003/6	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
0030-	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
0030.	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0030/	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
00301	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
00302	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
00303	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
00304	.*/.3*-//*--	OBP*@EFM	42	2"	.,.-T
00305	.*/.3*-/2*..	OBP*@EFM	.--	2"	.,.-T
00306	.*/.3*510*..	JBQ>I @EFM	35H	2"	.,.-T
0031.	.*/.3*510*..	JBQ>I @EFM	35H	2"	.,.-T
00310	.*/.5*552*..	JBQ>I @EFM	06H	-+2"	.,.-T
00314	.*/.3*531*..	PELOQ @EFM	-		
0032/	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
00320	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
00321	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T

OBC+KL+	M>OQ+KL	ABP@OFMQFLK			OBJ>OH
00322	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
00323	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
00324	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
00325	.*/.3*504*..	JBQ>I @EFM	//H	2"	.,.-T
00326	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0033-	.*/.3*51.*..	JBQ>I @EFM	14H	2"	.,.-T
0033.	.*/.3*5/4*..	JBQ>I @EFM	0+0H	2"	.,.-T
0033/	.*/.3*5/4*..	JBQ>I @EFM	0+0H	2"	.,.-T
00330	.*/.3*5-2*..	JBQ>I @EFM	14	2"	.,.-T

' >*.1-2*3/-*> SJ ?l^oa @l j mibqb

1*05/*521*-. P@OBT %J0U5&) M) PT %(&

9 @>M>@FQLO ;

@61-.	.*./3*614*..	BIB@Q	14RC	/-+--" 02S
@61-/	.*.31*.23*..	@BO>JF@ @EFM	-+.RC	/2S
@61-0	.*.-4*5/3*..	@BO>JF@ @EFM	-+.RC	.-+--" .3S
@61-1	.*.-4*303*..	BIB@Q	.-RC	/-+--" .3-S
@61-3	.*.3.*50-*--	@BO>JF@	-+--14RC	2--S
@61-4	.*.31*.23*..	@BO>JF@ @EFM	-+.RC	/2S
@61-5	.*./3*631*..	BIB@Q	.-RC	/-+--" 2-S
@61-6	.*.-4*303*..	BIB@Q	.-RC	/-+--" .3-S
@61.-	.*.04*2/5*..	JVI>0	-+.RC	.-+--" /2-S
@61..	.*.-4*5/3*..	@BO>JF@ @EFM	-+.RC	.-+--" .3S
@61./	.*.04*2/5*..	JVI>0	-+.RC	.-+--" /2-S
@61.0	.*.-4*5/3*..	@BO>JF@ @EFM	-+.RC	.-+--" .3S
@61.1	.*..4*12-*..	JVI>0	-+14RC	.-+--" /2-S

9 @LKKB@QLO ;

@K61-.	' .*231*2.-*..	MIRD) @LKKB@QLO 4M
@K61-/	' .*231*2-3*..	MIRD) @LKKB@QLO 0M
@K61-0	' .*44-*4/0*..	@LKKB@QLO) ?L>OA QL ?L>OA 5M

9 @LFI ;

I61-.	.*1.1*6/5*/.	FKAR@QLO	.RE
I61-/	.*1.1*6/5*/.	FKAR@QLO	.RE

9 QO>KPFPQLO ;

N61-.	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.
N61-/	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.
N61-0	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.
N61-1	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.
N61-2	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.
N61-3	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.
N61-4	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.
N61-5	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.
N61-6	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.
N61.-	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.
N61..	5*4/6*-12*-2	QO>KPFPQLO /P>/--2

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH
N61./	5*4/6*-12*-1	QO>KPFPQLO /P@22..	
N61.0	5*4/6*-.-*/6	QO>KPFPQLO JPA3-.*OPQ.	
N61.1	5*4/6*-.-*-2	QO>KPFPQLO JP?4-6*OQ.	

9 OBPFPQLO ;

061-.	.*/16*05.*..	@>O?LK	.	2"	.,1T
061-/	.*/.3*5/-*..	JBQ>I @EFM	5/-	2"	.,.-T
061-0	.*/.3*5.6*..	JBQ>I @EFM	35-	2"	.,.-T
061-1	.*/.3*501*..	JBQ>I @EFM	./H	2"	.,.-T
061-2	.*/.3*506*..	JBQ>I @EFM	00H	2"	.,.-T
061-3	.*/.3*5-2*..	JBQ>I @EFM	14	2"	.,.-T
061-5	.*/.3*5.2*..	JBQ>I @EFM	00-	2"	.,.-T
061-6	.*/.3*5-2*..	JBQ>I @EFM	14	2"	.,.-T
061.-	.*/.3*5-2*..	JBQ>I @EFM	14	2"	.,.-T
061..	.*/16*060*..	@>O?LK	.-	2"	.,1T
061./	.*/16*060*..	@>O?LK	.-	2"	.,1T
061.0	.*/16*060*..	@>O?LK	.-	2"	.,1T
061.1	.*/16*060*..	@>O?LK	.-	2"	.,1T
061.2	.*/16*060*..	@>O?LK	.-	2"	.,1T
061.3	.*/16*060*..	@>O?LK	.-	2"	.,1T
061.4	.*/16*060*..	@>O?LK	.-	2"	.,1T
061.5	.*/16*060*..	@>O?LK	.-	2"	.,1T
061.6	.*/.3*506*..	JBQ>I @EFM	00H	2"	.,.-T
061/-	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
061/.	.*/.3*5-.*..	JBQ>I @EFM	//	2"	.,.-T
061//	.*/.3*5-.*..	JBQ>I @EFM	//	2"	.,.-T
061/0	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
061/1	.*/.3*506*..	JBQ>I @EFM	00H	2"	.,.-T
061/2	.*/10*24/*/.	JBQ>I LUFAB	14-	2"	/T
061/3	.*/.3*506*..	JBQ>I @EFM	00H	2"	.,.-T
061/4	.*/.3*506*..	JBQ>I @EFM	00H	2"	.,.-T
061/6	.*/.3*5/.*..	JBQ>I @EFM	.H	2"	.,.-T
0610-	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0610.	.*/.3*5-6*..	JBQ>I @EFM	.--	2"	.,.-T
0610/	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T
06100	.*/.3*5.4*..	JBQ>I @EFM	14-	2"	.,.-T

OBC+KL+	M>OQ+KL	ABP@OFMQFLK	OBJ>OH

JFP@BII>KBLRP

¸	.*24.*100*/.	PTFQ@E) MRPE %>@ MLTBO&
	.*123*2.-*..	@LFI) @ELHB 15+2JJE
¸	.*450*-50*..	@LOA) MLTBO %TFQE CFIQBO&
	5*265*2/6*.-	COLKQBKA ?QC*BR3.. %HS*0/CN53R&
	5*265*200*.-	COLKQBKA ?QC*B@1.. %HS-/5CN53B) HS*0/CN53B,H&
	5*265*202*/-	COLKQBKA ?QC*BC1.. %HS-/5CN53?) HS*0/CN53?&
¸	.*120*045*/.	QO>KPCLOJBO >PPV) CIV?>@H %KU*3-/-,,W/.1& %HS*/5CN53&
¸	.*120*111*/.	QO>KPCLOJBO >PPV) CIV?>@H %KU*3-/-,,W/?1& %HS*0/CN53&
	.*2/6*1-5*..	PMB>HBO %1+/U/1@J&
	.*2/6*1.4*..	PMB>HBO %5@J&
¸	5*12.*2/.*0.	ABCIB@QFLK VLHB %V/5OS@0*I/& %HS*/5CN53&
¸	.*12.*15-*//	ABCIB@QFLK VLHB %VO/OS@/& %HS*0/CN53&
¸	5*120*-..*..	KB@H >PPV) %K>/66*J&
	.*1.6*030*..	@LFI) K> OLQ>QFLK
¸	.*1/1*553*..	@LFI) ABD>RPPFKD %HS*/5CN53&
¸	.*1/1*555*..	@LFI) ABD>RPPFKD %HS*0/CN53&
¸	.*/2.*613*..	@>M >PPV) EFDE*SLIQ>DB %HS*0/CN53&
¸	.*/2.*613*/.	@>M >PPV) EFDE*SLIQ>DB %HS*/5CN53&
¸	5*402*-46*-2	MF@QROB QR?B %T43IIW-3-U& %HS*0/CN53&
¸	5*402*-66*-2	MF@QROB QR?B %T33IIU-3-U& %HS*/5CN53&
	.*12/*-61*--	J>DKBQ) OLQ>Q>?IB AFPH8 .2JJ ì
	.*1/2*-0/*--	J>DKBQ) AFPH8 .-JJ ì

>@@BPPLOFBP >KA M>@H>DFKD J>QBOF>IP

'1*-61*/4-*-/	@RPEFLK RMMBO HS*0/CN53?,B,H,R
'1*-61*/4.*-/	@RPEFLK ILTBO HS*0/CN53?,B,H,R
'1*-54*261*-.	FKAFSFAR>I @>OQLK HS*0/CN53?,B,H,R
'1*.-0*.50*-.	FKAFSFAR>I @>OQLK HS*/5CN53?,B
1*-13*44/*-.	?>D MOLQB@QFLK HS*0/CN53?,B,H,R
1*-/6*.35*-.	?>D MOLQB@QFLK HS*/5CN53?,B
1*.-0*./1*..	FKPQOR@QFLK J>KR>I%DBOJ>K,QROHFPE,DOBBH& HS*/5,0/CN53B
1*.-0*./1*/.	FKPQOR@QFLK J>KR>I%FQ>IF>K& HS*/5,0/CN53B
1*.-0*./1*0.	FKPQOR@QFLK J>KR>I%KLOTBDF>K,MLOQRDRBPB, PTBAFPE,CFKKFPE,A>KFPE,PM>KFPE& HS*/5,0/CN53B
1*.-0*./1*1.	FKPQOR@QFLK J>KR>I%DBOJ>K,FQ>IF>K,COBK@E, ARQ@E& HS*/5,0/CN53?
1*.-0*./1*2.	FKPQOR@QFLK J>KR>I%BKDIFPE& HS*0/CN53?
1*.-0*./1*3.	FKPQOR@QFLK J>KR>I%?RID>OF>K,@WB@E,BKDIFPE, ERKD>OF>K,ORPPF>K,MLIFPE& HS*0/CN53H
1*.-0*./1*4.	FKPQOR@QFLK J>KR>I%BKDIFPE& HS*0/CN53R

OBJLQB @LJJ>KABO

.*145*306*..	OBJLQB @LJJ>KABO %OJ*612&

TRACE

A new TV Repair Assistance Tool that combines ease of use and powerful PC software tools to allow you to save valuable time during many TV repairs.

The TRACE interface connects to the PC's serial port. It provides connection to the TV's I^2C bus and can be provided with an InfraRed transmitter (optional).

The interface is powered by a standard 9 V PP3 battery for portable use, and can also be powered by an external 9V/25mA DC power supply.

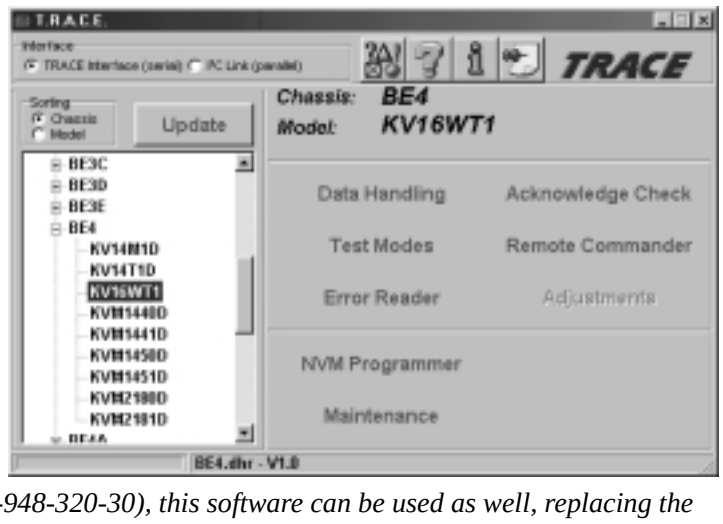
The TRACE software that is supplied with the interface allows you to:

- Read, restore and compare NVM contents via the I^2C bus
- Acknowledge check of all I^2C devices in the TV set
- Read Error Codes (emulation of the Error Reader tool)

With the optional IR Add-on kit, the following features can be added:

- Remote Commander emulation
- User programmable Functional Check through Infrared
- Fast and documented Test Mode setting of all Sony TV chassis

Additional features such as Adjustments and Troubleshooting are available in chassis-dependent software modules. Please contact your local Sony Service organisation for the latest information.



Note: For workshops already using the existing I^2C Link parallel port interface (9-948-320-30), this software can be used as well, replacing the TV Data Handling software (9-948-340-50), but Error Reader and IR functions can only be accessed with the TRACE interface.

Partnumbers:	TRACE Starter Kit (TRACE interface + software):	9-948-320-70
	TRACE Software (for users of the I^2C Link interface):	9-948-340-80
	TRACE IR Add-on (IR interface + Remote Commander software):	9-948-320-80

PC requirements: IBM-compatible PC with operating system Windows95, Windows98, or WindowsNT*.

* WindowsNT only supported with TRACE interface

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